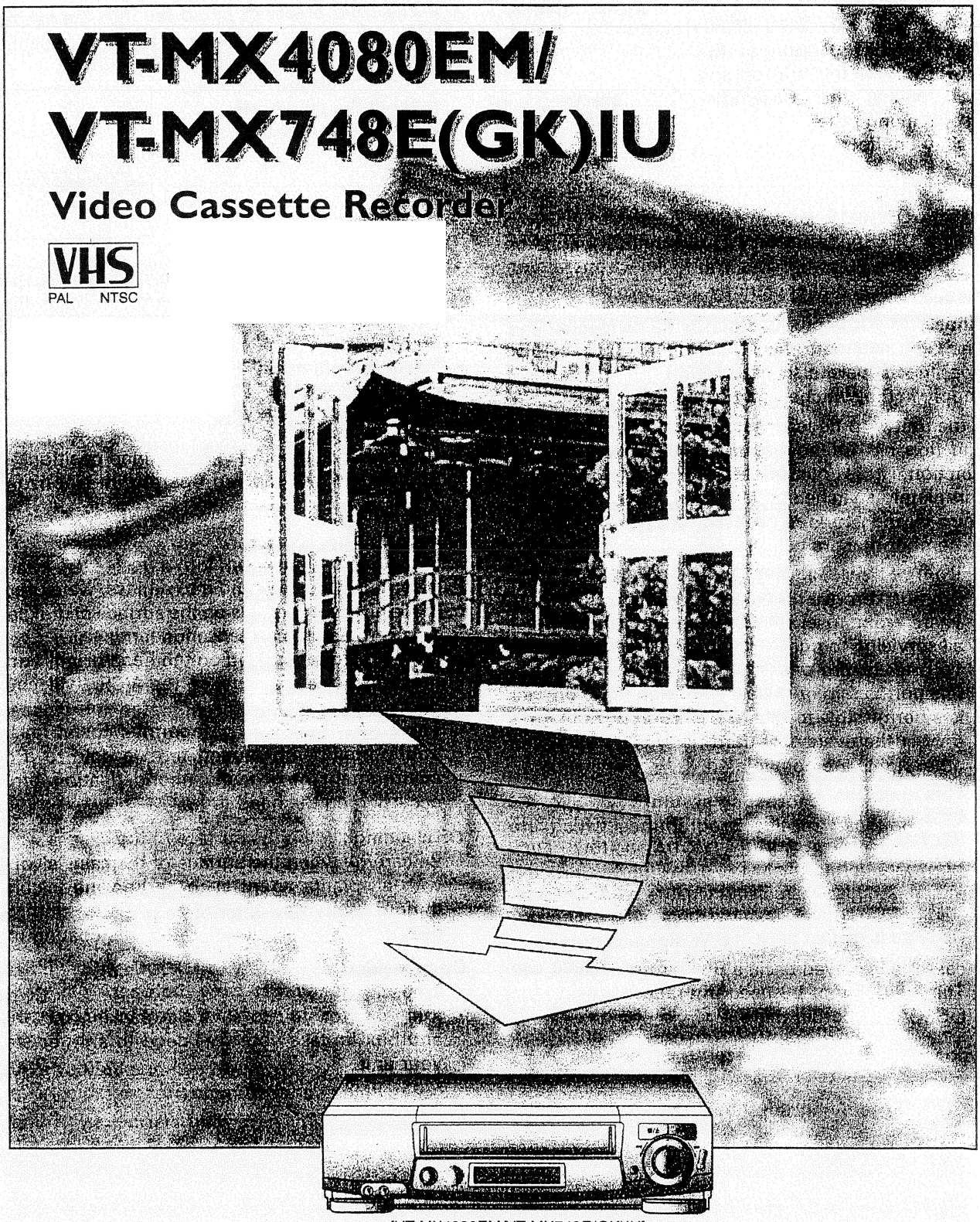
HITACHI

Instruction Manual

VT-MX4080EM/ VT-MX748E(GK)IU

Video Cassette Recorder

VHS
PAL NTSC



[VT-MX4080EM/VT-MX748E(GK)IU]

AV INPUT

DYNAMIC PICTURE ENHANCER

HEAD CLEANING

SMART PICTURE

TAPE FINDER

AUTO VOLTAGE

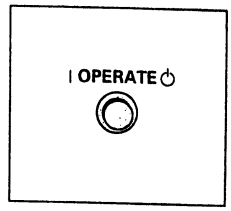
Printed in Malaysia

FOR YOUR SAFETY

WARNING

- **Mains supply:**
  This VCR can be used with a power (mains) voltage of 110 ~ 240V, 50/60 Hz around the world.

The OPERATE button of the VCR switches the VCR on and off, leaving the clock/timer facility unaffected.



- The OPERATE button is indicated "I OPERATE ⏻ "; this button allows you to select operate on or electrical power standby.

Notice:
The OPERATE button is secondarily connected and does not separate the apparatus from the mains supply in the switched-off position.

If the unit is to be left unattended for a long period and it is not intended to use the timer recording function, it is recommended that the unit be completely switched off and the plug removed. If you intend to record during your absence, remember there is no necessity for the TV receiver to be switched on.

- Do not remove panel covers by unscrewing. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose this unit to rain or moisture.
- It is permissible to record television programmes only in the event that third party copyrights and other rights are not violated.

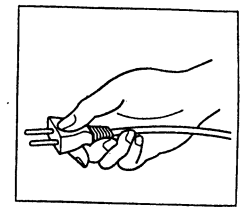
Note for colour broadcasting system

1. This unit can receive programmes which are broadcast by B/G-PAL, D/K-PAL, I-PAL, B/G-SECAM and D/K SECAM systems, and record and play back colour television signals.
2. When a cassette recorded using an L-SECAM-VHS video recorder or L-SECAM prerecorded cassette is played back, a B/W signal is output.
3. This unit cannot be used in France. Please use L-SECAM recorder there.

PRECAUTIONS

On safety

- If any solid object or liquid fall into the cabinet, turn off the unit and do check by qualified personnel before operating it any further.
- To disconnect the main lead, pull out the plug itself.
  Never pull the lead.



On installation

- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibrations or shocks.
- Never bring a magnet or magnetized object near the VCR because it will adversely affect the performance of the VCR.
- Do not install the unit in an inclined position.
  The unit is designed to operate in a horizontal position.

On operation

- Moisture condensation
  If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is moisture condensation.
  Moisture condensation on the head drum, one of the most crucial parts of the VCR, will cause damage to the tape.
  The VCR should not be operated for at least 2 hours after being moved from a cold to a hot environment to avoid condensation from occurring on the head drum.

On cleaning

- Be careful; when the surface of the case is wiped with a volatile agent such as benzine, alcohol, thinner, etc., or a chemically processed cloth, the surface finish may deteriorate or its coating may peel.

On repacking

- It is wise for you to save the packing materials and box in case you ever need to ship or store your unit.

FEATURES

Multi-record/playback system
It may be more realistically understandable to you how attractive this video recorder is, if actual capability for recording/playing back video signals with this unit are listed up, as follows.

(1) PAL-SP (Standard Play) tapes
(2) PAL-LP (Long Play) tapes
(3) MESECAM-SP tapes
(4) MESECAM-LP tapes
(5) NTSC-SP tapes
(6) NTSC-LP tapes (Playback only)
(7) NTSC-EP (Extra Long Play) tapes
In addition to the above, the following 3 features are counted.
(8) 4.43 NTSC/3.58 NTSC* compatible for relevant colour TVs.
(9) B/G-PAL, D/K-PAL, B/G-SECAM, D/K-SECAM and NTSC recording with built-in tuner & play with G/I/K/M RF converters. (VT-MX4080EM)
(10) Possible to play NTSC recorded tapes on a PAL TV.

8 hours long play/long recording compatible

(1) PAL/MESECAM - LP
.....maximum 8 hours (E240)
(2) PAL/MESECAM - SP
.....maximum 4 hours (E240)
(3) NTSC - EP
.....maximum 8 hours (T160)
(4) NTSC - LP
.....maximum 5 hours 20 min (T160)
(Playback only)
(3) NTSC - SP
.....maximum 2 hours 40 min (T160)

Multi-TV tuners built-in

(1) B/G for B/G-PAL and B/G SECAM reception
(2) D/K for D/K-PAL and D/K-SECAM reception
(3) I for I-PAL reception
(4) M for NTSC reception (VT-MX4080EM only)
You can tune in broadcasts of Middle East B/G-SECAM and European B/G-PAL, People's Republic of China D/K-PAL, C.I.S D/K-SECAM, English/Hong Kong I-PAL and American/Japanese NTSC broadcast (VT-MX4080EM only) for recording to video tape without additional TV tuner.

Super rewind and fast forward
Rewinds or fast-forwards the tape at high speed.

Multi-RF converters built-in

(1) G for B/G-PAL/SECAM TV
(2) K for D/K-PAL/SECAM TV
(3) I for I-PAL TV
(4) M for NTSC TV (VT-MX4080EM only-Auto selection)

Tape Finder Function allows you to search for a programme you want to view or the point from which you want to start recording on tape.

Smart Picture Function for selection of sharpness and softness of picture during playback.

Four heads for optimum performance for both SP and LP/EP
Two kind of width heads are installed to improve picture reproduction both for Standard Play and for Long Play operations.

Full automatic head cleaning system
Auto head cleaning system minimizes the need for accessory cleaners and professional head cleaning.

Selectable 4 languages OSD

(English, Chinese, Russian and Malay)

Graphic OSD (On-Screen Display) function displays the VCR mode, channel number, tape remaining time, date and tape speed on the TV screen. You can also check the programme of the timer on the TV screen.

Multi-search system for easily locating the desired scene

—VHS index search (see page 31 for details)
—Visual search (see page 32 for details)

Quick action mechanism

Graphic OSD (On-Screen Display) menu for programming and setting.

Automatic controls for easier operation

—Auto Head Cleaning system minimizes the need for accessory cleaners and professional head cleaning.
—Auto Tracking system automatically adjusts the tracking when self-recorded tapes or tapes recorded on another VCR are played back.
—Auto Play immediately starts to play a tape without its safety tab.
—Auto Eject & Auto Tape Canceller eject cassette without its safety tab when recording.
—Auto Endless Play repeats playing tape from beginning to end.
—Auto Operate On turns system power on by simply inserting cassette.
—Auto Rewind/Rewind Shutoff automatically rewinds tape at its end and automatically shuts off at its beginning even if the OPERATE button is pressed.
—Auto Seek - These VCR will automatically seek and store the best RF output frequency after auto tuning. (VT-MX748E(GK)IU only)
—Auto Tuning - Tunes in stations and sorts correct order. (VT-MX748E(GK)IU only)

Frequency synthesized tuner provides easy, preset tuning for up to 49 channels including CATV reception.

PLL system provides easy preset tuning for a VCR RF channel.

Instant Recording Timer (IRT) is possible.

Child lock can be used to lock the VCR function mode (recording, play, etc.).

Sharp, finely detailed pictures from High Quality (HQ) picture technology.

HOW TO ENJOY THIS MULTI-SYSTEM VIDEO CASSETTE RECORDER

There are various colour broadcasting systems in different parts of the world. Your TV set can receive TV broadcast in your area, but perhaps cannot receive colour broadcasts in other countries. There are tapes recorded with different colour broadcast systems.
Use this unit after fully understanding the following.

- **Broadcast systems ...**

Table 1

		that can be recorded with VT-MX4080EM / that can be recorded with VT-MX748E(GK)IU					
Broadcasting system for colour TV		B/G PAL	I-PAL	D/K-PAL	B/G-SECAM	D/K-SECAM	NTSC*2
Major Countries		Australia Germany Kuwait India Italy Singapore U.A.E Malaysia	Great Britain Hong Kong	China	Saudi Arabia Greece Lebanon Morocco Egypt	Bulgaria Ivory Coast C.I.S Mongolia	USA Canada Japan Philippines Mexico
VCR Recording Mode	PAL-SP *1	YES	YES	YES			
	PAL-LP	YES	YES	YES			
	MESECAM-SP				YES	YES	
	MESECAM-LP				YES	YES	
	NTSC-SP						YES
	NTSC-LP						
	NTSC-EP						YES
RF OUT SYSTEM selection (G/I/K) (see page 23 for details)		G	I	K	G	K	ANY

*1 Suffixes "-SP", "-LP" and "-EP" mean the tape speeds of recorded tapes.
*2 In addition to the above recording NTSC 4.43 for VCR recording is possible only for dubbing purpose from NTSC 4.43 signal from other VCR.

- **Types of tape playable with VT-MX4080EM or VT-MX748E(GK)IU and TV set to be connected.** **Table 2**

TV system / VCR playback mode	B/G-PAL colour TV	I-PAL colour TV	D/K-PAL colour TV	B/G-SECAM colour TV	D/K-SECAM colour TV	NTSC 3.58 colour TV	NTSC 4.43 colour TV	Multi-system colour TV (for example HITACHI CMT-2518/ 2718/ 2918)
PAL-SP	YES	YES	YES					YES
PAL-LP	YES	YES	YES					YES
MESECAM-SP				YES	YES			YES
MESECAM-LP				YES	YES			YES
NTSC-SP	*3 (YES)	*3 (YES)	*3 (YES)			YES	YES	YES
NTSC-LP	*3 (YES)	*3 (YES)	*3 (YES)			YES	YES	YES
NTSC-EP	*3 (YES)	*3 (YES)	*3 (YES)			YES	YES	YES

*3 It is possible to playback an NTSC recorded tape when the TV has vertical sync adjustment circuitry (or volume) for 60Hz.

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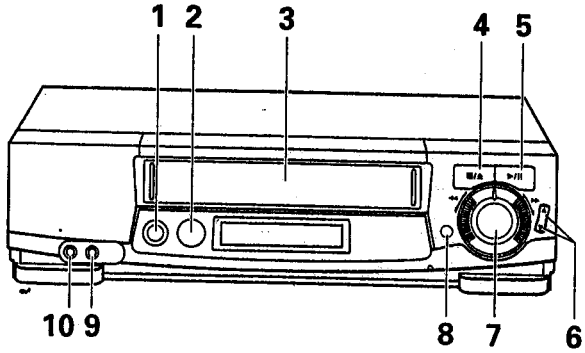
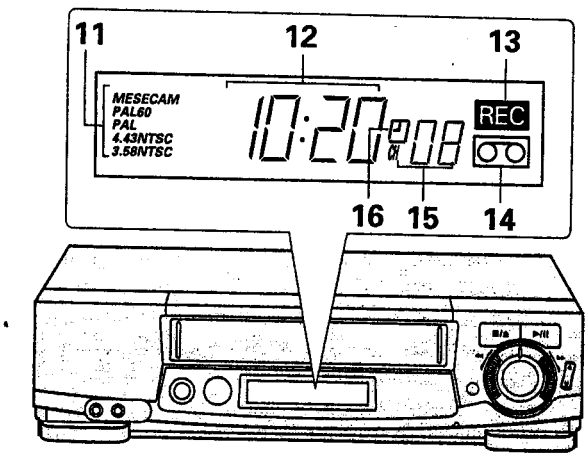
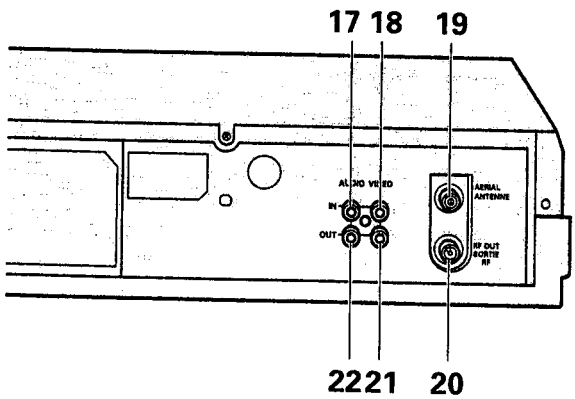
CUSTOMER CONTROLS

VCR Customer Controls







Item No.	Function	Page
1	OPERATE button	2
2	Remote control receiving window	8
3	Cassette compartment	9
4	STOP/EJECT button	9
5	PLAY/STILL button	13
6	CHANNEL (channel up/down)	–
7	Shuttle Knob	30
8	REC/IRT button	40
9	AUDIO IN jack	45
10	VIDEO IN jack	45
	VCR Display	
11	Colour system indicators— indicates the system corresponding to the colour system which is being recorded or played back.	
12	Time,	25
	Time counter,	33
	VCR mode indicator	26
	PLAY — playback	26
	SRCH — double-speed play and visual search	29
	("–" appears during reverse direction viewing)	
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13	REC — record (flashes during record pause)	39
14	Tape-in indicator	9
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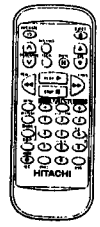
17	AUDIO IN jack	46
18	VIDEO IN jack	46
19	AERIAL input — signal input	10
20	RF OUT — signal out to TV	10
21	VIDEO OUT jack	10
22	AUDIO OUT jack	10

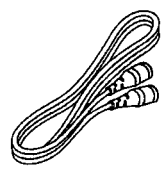
Accessories supplied

Check and identify the accessories supplied.
If any are missing or appear damaged, consult your dealer.

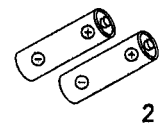
① Remote control



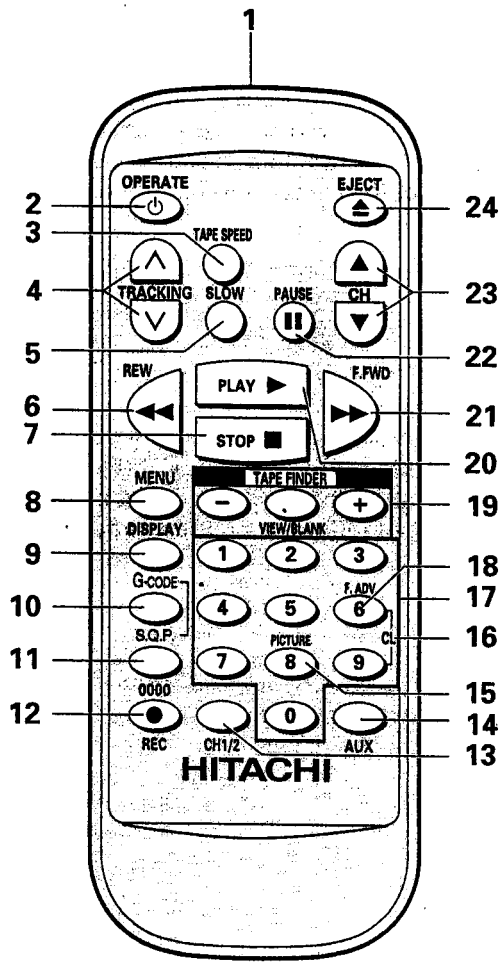
② Cable for connecting this VCR to a TV



③ 2 pcs. Batteries for remote control handset (R6)



Remote Control Customer Controls



Item No.	Function	Page
1	Transmission window	8
2	OPERATE button	8
3	TAPE SPEED button	37
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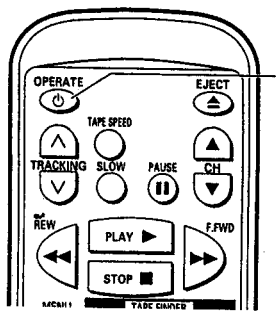
10	S.Q.P. (Super Quick Programming) button — used for programming the timer	42
11	0000 — clears time counter	36
12	REC — record button	38
13	CH 1/2 button — (Not apply for these models)	—

Item No.	Function	Page
14	AUX button — select L1 or L2	45
15	PICTURE button — press these button to select the sharpness and softness of the picture quality during play	30
16	CL (Child Lock) — press these button simultaneously to disable the operation of the VCR front panel buttons	29
17	Number buttons	24
18	F.ADV button — frame advance button	29
19	TAPE FINDER button — used for index search, Easy View and Blank Search function.	31
20	PLAY button — playback	26
21	F. FWD button — fast forward or search	28
22	PAUSE button	28
23	CH (channel up/down) button	13
24	EJECT button	9

REMOTE OPERATION

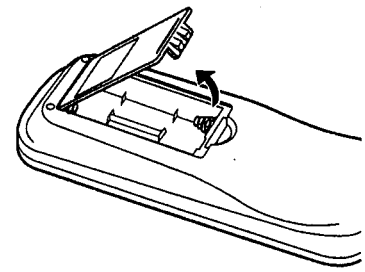
■ Install batteries in the remote control



The remote control requires two "(size IEC standard R6)" batteries.

❶ Insert your fingertip into the notch and push the battery compartment cover to remove it

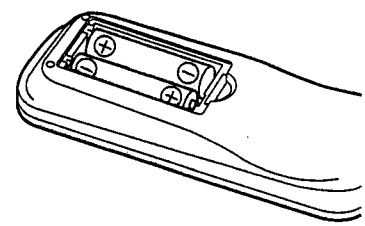
Note: When replacing the batteries, remove the old batteries and keep the OPERATE button pressed for 10 seconds before inserting fresh batteries.

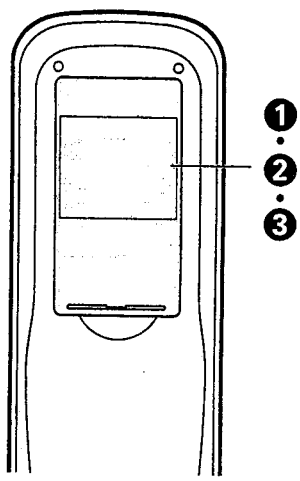


Hold for 10 seconds

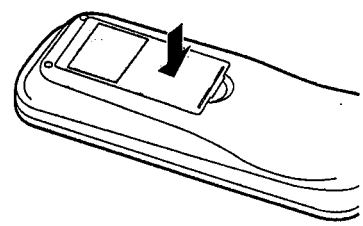
❷ Install batteries.

- Arrange the positive (+) and negative (–) polarity marks on the batteries with those indicated on the remote control.

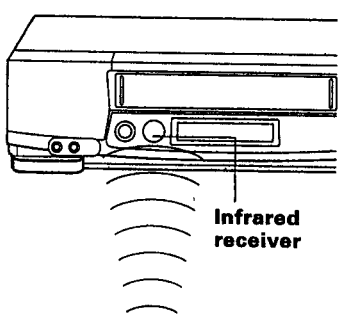




❸ Replace the cover.



■ Remote control operations



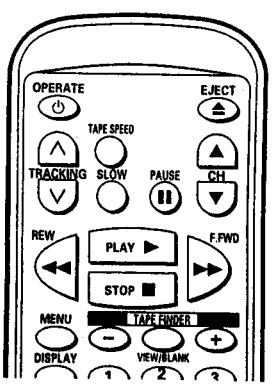
Operating the VCR:

❶ Make sure there is no obstacle between the remote control and VCR's infrared receiver.

Note: *You cannot operate the VCR if there is an obstacle (for example, coffee table, sofa,etc) between the VCR and remote control.*

❷ Point the remote control at the VCR's infrared receiver and press the required button on the remote control.

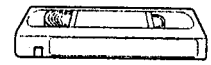
Note: *If the remote does not work even at close range, try replacing the batteries with two fresh "(size IEC standard R6)" batteries.*



CASSETTE TAPES

■ Types

Only use video cassettes with the VHS mark in this VCR.



- Change over the TAPE SPEED button on the remote control unit before recording. It is set to the speed used for recording automatically during play, so it is not required to change over it.
- It is recommended to record in the SP mode for higher quality picture and sound.

The table shows the recording time of different cassettes.

- PAL & MESECAM tapes

Types	Recording time	
	SP	LP
E-30	30 min.	60 min.
E-60	60 min.	120 min.
E-120	120 min.	240 min.
E-180	180 min.	360 min.
E-240	240 min.	480 min.

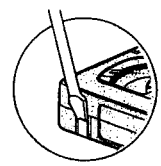
- NTSC tapes

Types	Recording time	
	SP	EP
T-30	30 min.	90 min.
T-60	60 min.	180 min.
T-120	120 min.	360 min.
T-160	160 min.	480 min.

■ Safety tabs prevent erasure

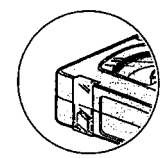
To avoid erasing a recording

Break off the safety tab using a screwdriver or similar tool.



To re-record on a cassette which has its safety tab removed

Cover the hole with plastic/ cellophane tape.



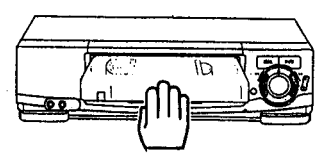
Remember that:

- The VCR automatically enters the playback mode when a cassette without its safety tab is inserted.
- When you press the REC or REC/IRT button and a cassette without the safety tab is inserted, "TAb" will flash in the VCR display for several seconds and the cassette will be ejected automatically.
- Be sure to check the safety tab before inserting a cassette for above reasons.

■ Insertion

Push the video cassette gently into the slot in front of the VCR.

- The VCR automatically turns on and the "Tape-In" indicator ⊡ turns on when the cassette is in place.

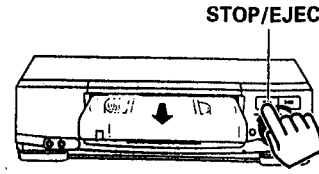


■ Removal

Press the STOP/EJECT button on the VCR or EJECT button on the remote control.

The cassette will come partially out of the compartment so you can pull it out.

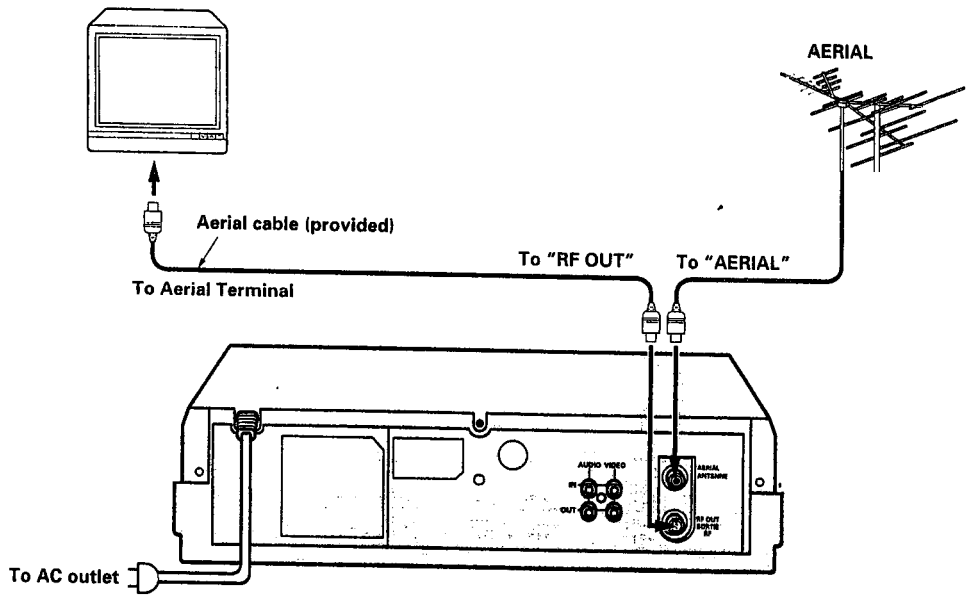
- The "Tape-In" indicator ⊡ turns off.
- The cassette can be ejected with the power on or off.



BASIC INSTALLATION (VT-MX4080EM)

Type 1

When combined with a multi TV set [PAL: System B&G, SECAM B&G, NTSC 3.58MHz (standard) or 4.43MHz (modified)], PAL (system B&G, D&K or I) or SECAM (system B&G or D&K) TV set.

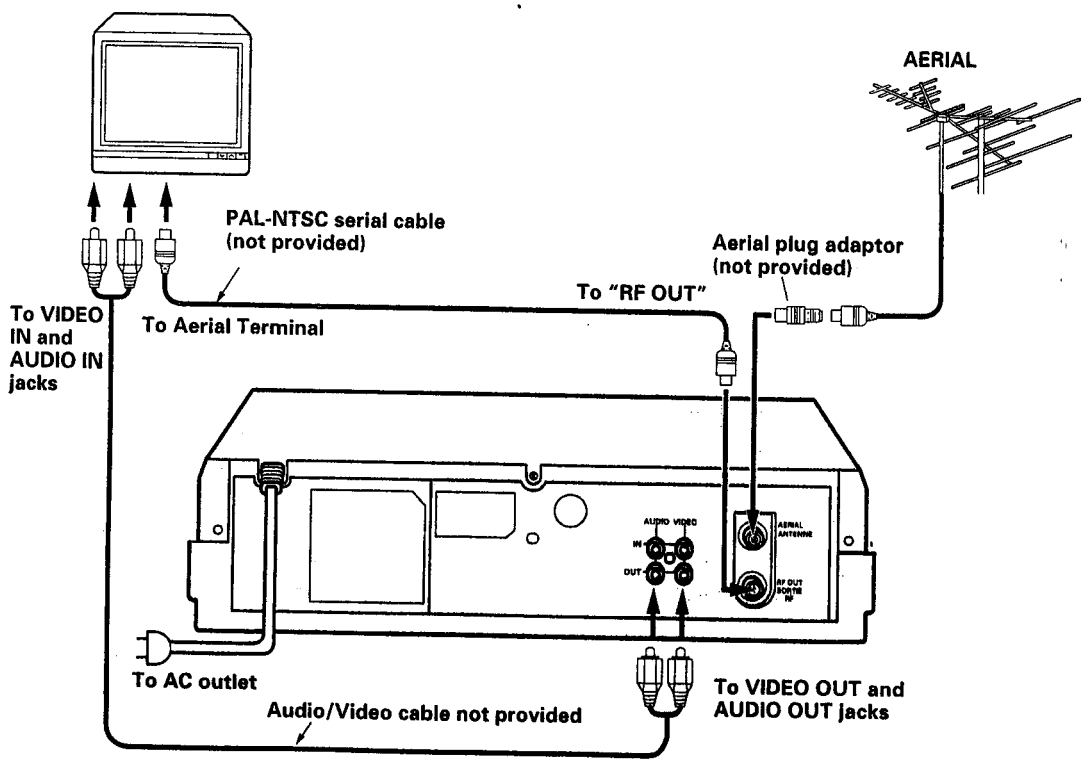


1. Remove the coaxial aerial cable from your TV set. Insert this cable into the terminal of the VCR marked "AERIAL".
2. Connect your TV to the RF OUT terminal with the coaxial connector cable provided.
3. Plug into the mains.

ADVANCED INSTALLATION—AV CONNECTION

Type 2

When combined with an NTSC (standard 3.58MHz) TV set.



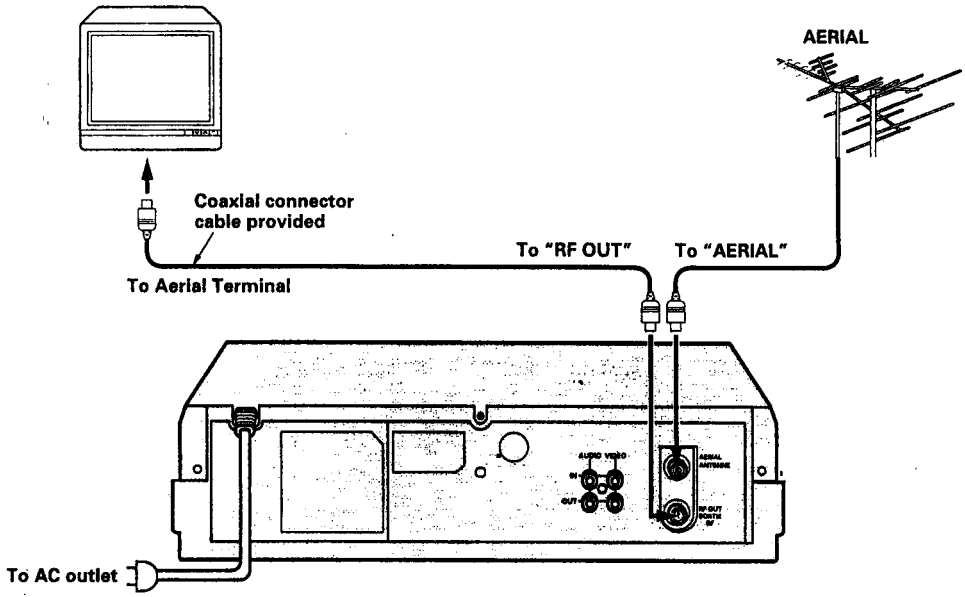
BASIC INSTALLATION A (VT-MX748E(GK)IU)

1. Remove the coaxial aerial cable from your TV set. Insert this cable into the terminal of the VCR marked "AERIAL".
2. Connect your TV to the RF OUT terminal with the coaxial connnector cable provided.
3. Plug into the mains.

WITH THIS CONNECTION

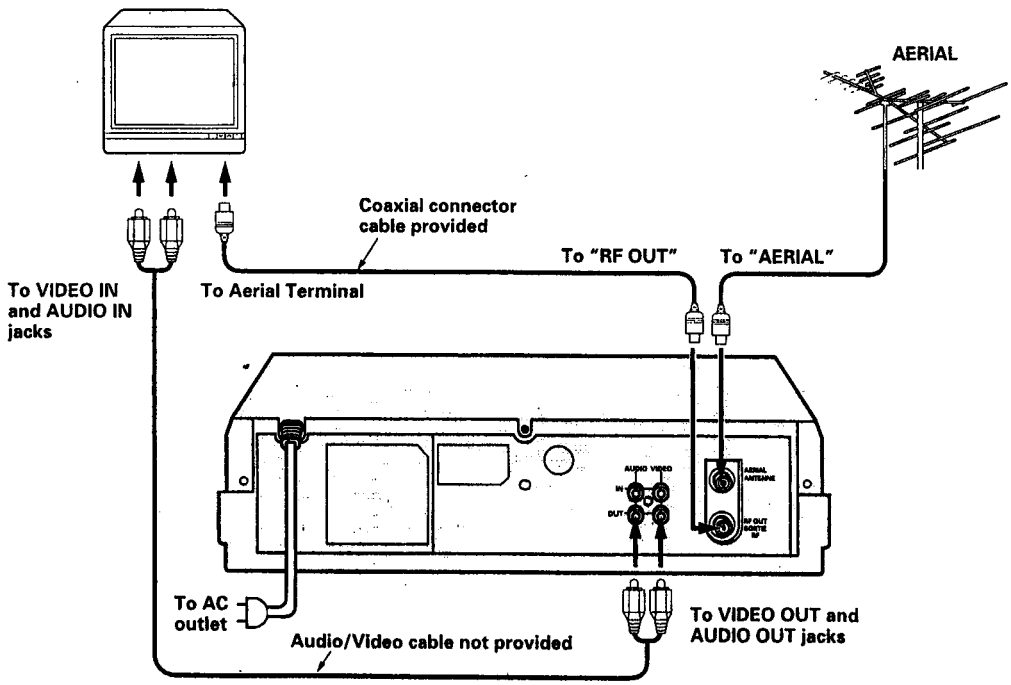
YOU CAN.....

- WATCH AVAILABLE TV CHANNELS
- RECORD AND WATCH THE SAME CHANNEL
- RECORD ONE CHANNEL AND WATCH ANOTHER



If your TV set has VIDEO/AUDIO IN jacks, follow the connections below to play back better pictures.

ADVANCED INSTALLATION—AV CONNECTION B



With this connection method:

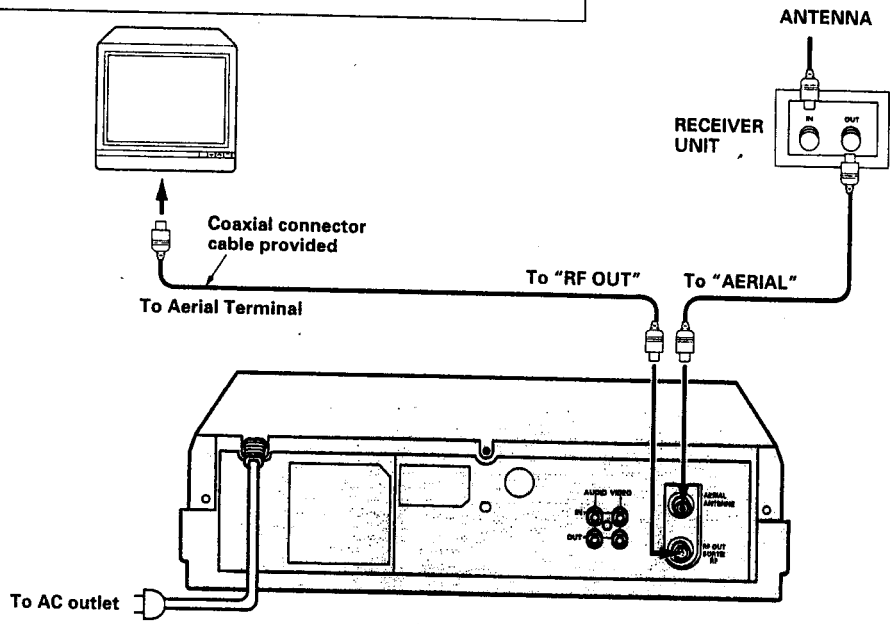
- During playback, the signals from the AUDIO/VIDEO OUT jacks of the VCR are fed to your TV. You can view the picture by selecting the TV to video input mode.

Cable BASIC CABLE INSTALLATION C

WITH THIS CONNECTION

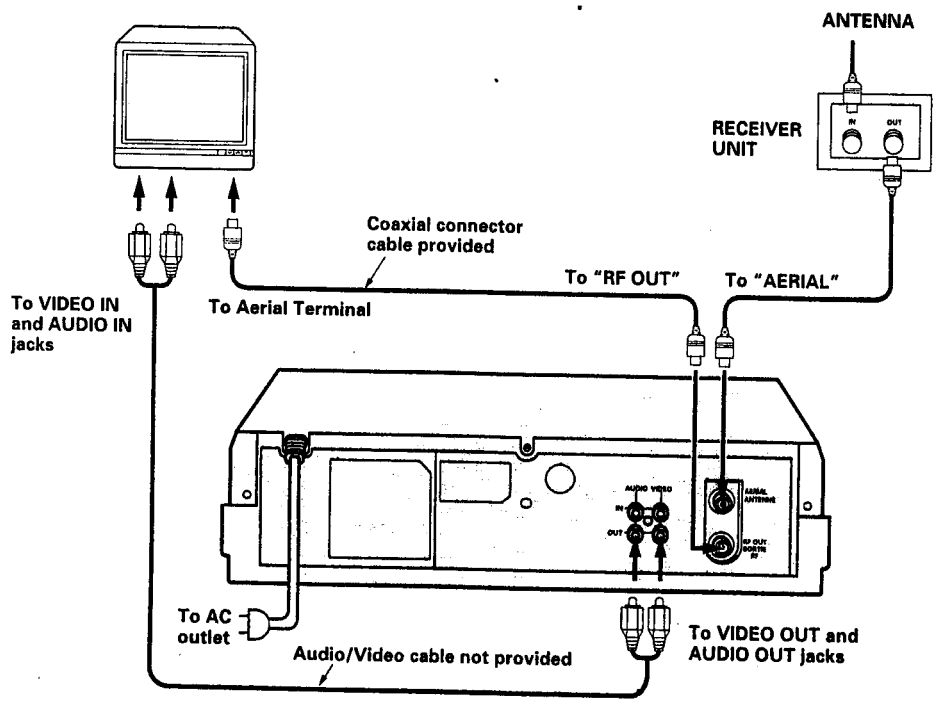
YOU CAN.....

- **WATCH AVAILABLE CABLE CHANNELS**
- **RECORD AND WATCH THE SAME CHANNEL**
- **RECORD ONE CHANNEL AND WATCH ANOTHER**



If your TV set has VIDEO/AUDIO IN jacks, follow the connections below to play back better pictures.

Cable ADVANCED CABLE INSTALLATION—AV CONNECTION D



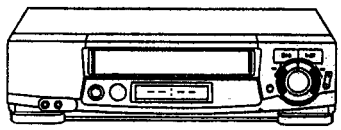
With this connection method:

- During playback, the signals from the AUDIO/VIDEO OUT jacks of the VCR are fed to your TV. You can view the picture by selecting the TV to video input mode.

SETTING THE VIDEO PROGRAMME NUMBER ON YOUR TV

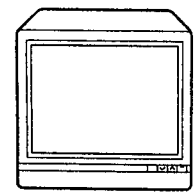
Note: *The RF converter changes the video and audio signals from VCR to the same type of signal used for TV broadcasts. The RF converter output in this unit is preset prior to shipment to frequency 607MHz.*

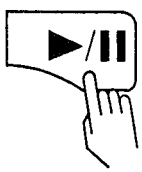
■ To select Video Programme Number



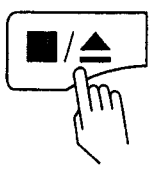
Switch on at the mains supply socket
The VCR displays "– – : – –" after connecting the main supply (Note: The VCR will be in the standby mode at this stage) In case of any interference occur on your TV screen, please choose other RF output frequency as shown in procedure bellow.

❶ Switch on your TV and select an unused programme number .
Note: This programme number will be your VCR programme number from now on.



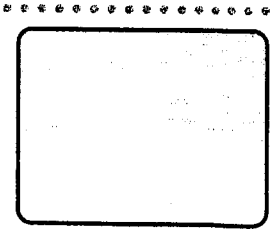


❷ Press the PLAY/STILL button.
(Note: The VCR is still in the standby mode) and " *607* " appears in the displays as shown.
Press the CH button (▲/▼) to change the RF frequency suitable in your area.



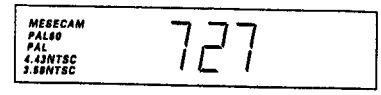
Note: To stop the output of RF frequency from VCR to TV, press the STOP/EJECT button, and "– – –" appears in the displays as shown. Press the STOP/EJECT button again to output the RF frequency and " *607* " appears in the VCR display.

❸ Tune your TV (consult your TV instruction manual) until test pattern shows appears.
The correct tuning position is when the picture is clear. Ensure this programme is stored in your TV.



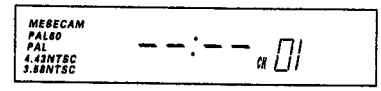
SETTING THE VIDEO PROGRAMME NUMBER ON YOUR TV

4 If you cannot tune your TV correctly to the test signal or there is signal interference, then it may be necessary to change the RF out frequency. In this case, press the CH button on the VCR to change the VCR's RF frequency. Then retune your TV. If the test signal has not improved, continue to change the VCR's RF frequency and retune your TV each time, until a clear test pattern received. VCR's RF channel will change as follows.

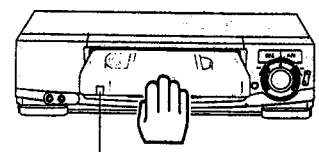


479MHz → 607MHz → 727MHz

5 **Press the PLAY/STILL button again.**
The test pattern will disappear and the VCR will now come out of the standby mode into the operate mode.



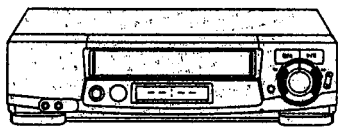
6 You should now be able to playback a prerecorded cassette.
Insert the cassette carefully.
If the safety tab is removed, the playback will start immediately, if not press the PLAY/STILL button and the picture will appear on the screen.



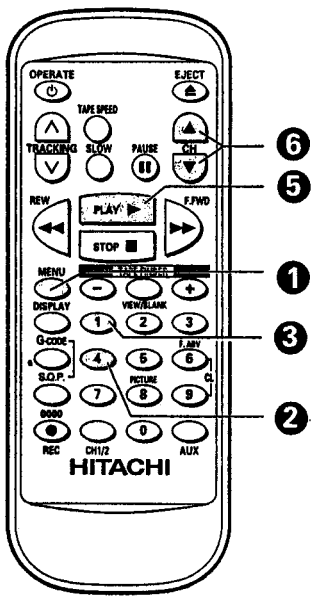
PRE-TUNING OF BUILT-IN TV TUNER (VT-MX748E(GK)IU ONLY)

Note: *This VCR incorporates a complete television tuner with the required tuning controls. Once you have pre-tuned to preferred stations, you can select any of them by merely pressing the CH (channel) button or two number buttons 0 ~ 9.*

■ To select Channel Preset Automatically

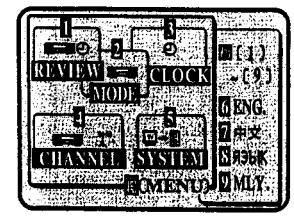


The VCR display "– – : – –" after connecting the main supply. Turn on the TV and the VCR, then tune the TV to the video programme number as described on page 13. Or, if the TV and VCR are connected with an audio/video cable, set the TV to AUX or VIDEO.

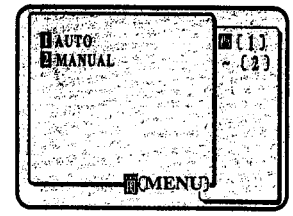


❶ Press the MENU button.
The main on-screen menu will appear on the TV screen.

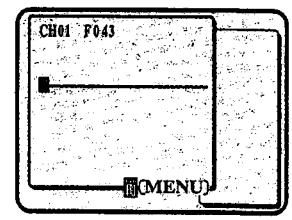
You may view all the on-screen instructions in English, Chinese, Russian or Malay. When you first set up your VCR, it will be set to English. Press the ⑦ button for Chinese, ⑧ button for Russian and ⑨ button for Malay.

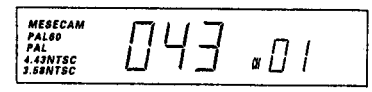


❷ Press the ④ button to select the Channel Preset operation.



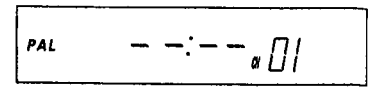
❸ Press the ① button to select the Channel Preset automatically.
At this stage, the VCR will automatically store frequency received in your area from 043MHz to 865MHz.
Note: You can watch the progress in the VCR's display. When the channel numbers stop changing, pre-tuning is completed.



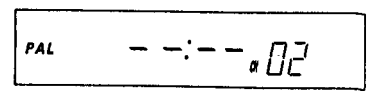


❹ At this stage, the VCR will do auto seek function which will select the most suitable output frequency for RF OUT frequency after auto tuning function. Refer to setting The Video Programme Number On Your TV page 13 to tune your TV until test pattern appears.

❺ Press the PLAY button .
The test pattern will disappear and the VCR will now come out of standby mode into the operate mode.

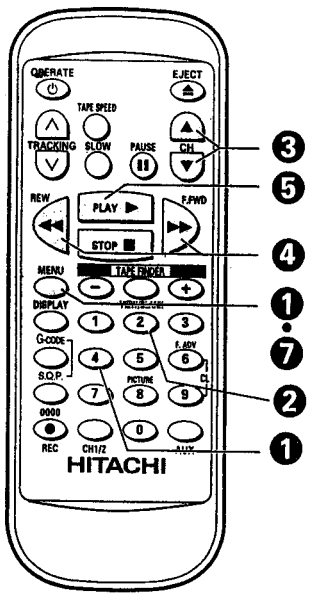


❻ Press the CH (▲/▼) button to check the channel you can receive.
Note: If no channels have been set or a clear picture does not appear, check the aerial connection.

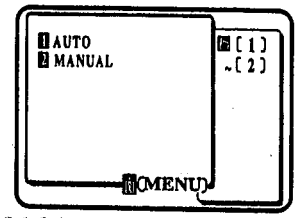


PRE-TUNING OF BUILT-IN TV TUNER (VT-MX748E(GK)IU ONLY)

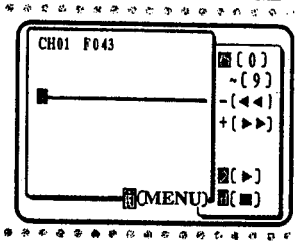
■ To select Channel Preset Manually



1 **Press the MENU button, and then press ④ for channel preset operation.**

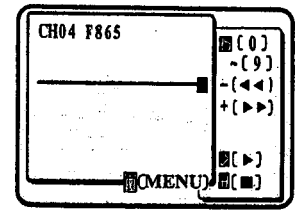


2 **Press the ② button to select the CHANNEL PRESET manually.**



3 **Press the CH (▲/▼) button to select the channel number to be memorized.**

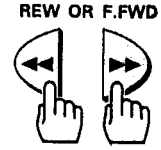
- The screen show that channel number 4 has been selected.
- The selected channel number and channel frequency will appear in the VCR's display.

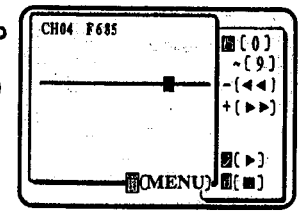


4 **Press the REW or F.FWD button to start tuning. At a channel that is broadcasting, the picture appears on the TV screen.**

- If the programme displayed is different from the channel to be preset, press the REW or F.FWD button again.

REW OR F.FWD

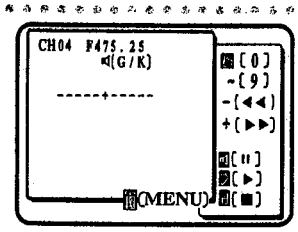




- Pressing the F.FWD button scans CCIR channels in the order VHF (2-4) → CATV (X–Z+2) → CATV (S1-S10) → VHF (5-12) → CATV (S11-S40) → UHF (21-69). Pressing the REW button scans in the reverse order.

5 **Press the PLAY button when the desired channel is reached.**

The following display will appear on the TV screen, and "–" will be displayed in the VCR's display.
Note: If the TV programme broadcast by a preset channel does not appear clearly, press the REW or F.FWD button to fine tune the channel.



After fine tuning is completed, press the PLAY button again.
If the sound is abnormal in this step while the picture is clear, change the sound mode.

Press the PAUSE button to switch between sound "◁ (G/K)" and sound "◁ (I)". The sound should now become normal.
Press the PLAY button to store the sound mode in memory.

- Perform this procedure and make the sound of all other necessary channels normal.

6 **Follow the same steps as explained in step 3 through 5 above for other channels.**

You can preset up to 49 channels in memory.

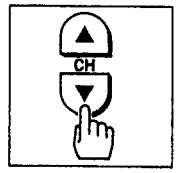
7 **After having completed tuning to all required channels, press the MENU button.**

The channels preset in memory as shown in the above can be selected with the CH (▲/▼) button.

MENU

■ Programme selection

The programme up and down controls on the remote control let you advance directly to the next higher or lower programmed channel.



VHF, UHF and CATV channels direct preset

Press the 10-key buttons on the remote control unit instead of step 4 on page 16 to preset desired VHF, UHF and CATV channels. For example, press " ⓪ " " ④ " " ⑧ " for the channel frequency of 48.25 MHz.

- To preset UHF channel 39 in channel number 04, for example, press the CH (channel) button to display channel number " 04 " and use the number buttons on the remote control unit to enter the frequency of this channel, then press the PLAY button to store it in memory.
- To preset CATV channel S5 in channel number 30, for example, press the CH (channel) button to display the channel number " 30 " and use the number buttons on the remote control unit to enter the frequency of this channel, then press the PLAY button to store it in memory.

The following table shows channels numbers corresponding to the video frequencies used in the CCIR and C.I.S when the channels are preset using the above direct preset method.
For example, when " ⑤ ", " ⑤ " and " ① " of the 10-key buttons are pressed, channel 31 is received in the CCIR and C.I.S.

Note: The following table shows the exact frequencies of channels, but due to drift, the on-screen display may be 0.05 MHz above or below these frequencies.

CATV channels

10-key direct preset channel frequency					
Channel number	CCIR	C.I.S	Channel number	CCIR	C.I.S
X	69.25	—	S15	259.25	—
Y	76.25	—	S16	266.25	—
Z	83.25	—	S17	273.25	—
Z+1	90.25	—	S18	280.25	—
Z+2	97.25	—	S19	287.25	—
S1	105.25	—	S20	294.25	—
S2	112.25	—	S21	303.25	—
S3	119.25	—	S22	311.25	—
S4	126.25	—	S23	319.25	—
S5	133.25	—	S24	327.25	—
S6	140.25	—	S25	335.25	—
S7	147.25	—	S26	343.25	—
S8	154.25	—	S27	321.25	—
S9	161.25	—	S28	359.25	—
S10	168.25	—	S29	367.25	—
E5	175.25	—	S30	375.25	—
E6	182.25	—	S31	383.25	—
E7	189.25	—	S32	391.25	—
E8	196.25	—	S33	399.25	—
E9	203.25	—	S34	407.25	—
E10	210.25	—	S35	415.25	—
E11	217.25	—	S36	423.25	—
E12	224.25	—	S37	431.25	—
S11	231.25	—	S38	439.25	—
S12	238.25	—	S39	447.25	—
S13	245.25	—	S40	455.25	—
S14	252.25	—	S41	463.25	—

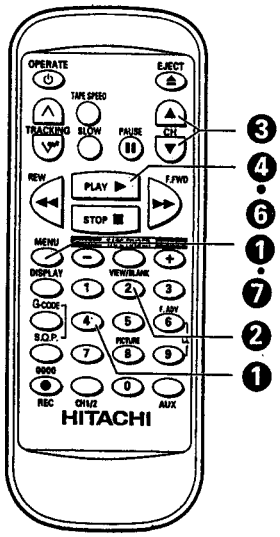
VHF and UHF channels

10-key direct preset channel frequency					
Channel number	CCIR	C.I.S	Channel number	CCIR	C.I.S
1	—	—	42	639.25	639.25
2	48.25	—	43	647.25	647.25
3	55.25	—	44	655.25	655.25
4	62.25	—	45	663.25	663.25
5	175.25	—	46	671.25	671.25
6	182.25	—	47	679.25	679.25
7	189.25	—	48	687.25	687.25
8	196.25	—	49	695.25	695.25
9	203.25	—	50	703.25	703.25
10	210.25	—	51	711.25	711.25
11	217.25	—	52	719.25	719.25
12	224.25	—	53	727.25	727.25
13	—	—	54	735.25	735.25
14	—	—	55	743.25	743.25
15	—	—	56	751.25	751.25
16	—	—	57	759.25	759.25
17	—	—	58	767.25	767.25
18	—	—	59	775.25	775.25
19	—	—	60	783.25	783.25
20	—	—	61	791.25	791.25
21	471.25	471.25	62	799.25	799.25
22	479.25	479.25	63	807.25	807.25
23	487.25	487.25	64	815.25	815.25
24	495.25	495.25	65	823.25	823.25
25	503.25	503.25	66	831.25	831.25
26	511.25	511.25	67	839.25	839.25
27	519.25	519.25	68	847.25	847.25
28	527.25	527.25	69	855.25	855.25
29	535.25	535.25	R 1	—	49.75
30	543.25	543.25	R 2	—	59.25
31	551.25	551.25	R 3	—	77.25
32	559.25	559.25	R 4	—	85.25
33	567.25	567.25	R 5	—	93.25
34	575.25	575.25	R 6	—	175.25
35	583.25	583.25	R 7	—	183.25
36	591.25	591.25	R 8	—	191.25
37	599.25	599.25	R 9	—	199.25
38	607.25	607.25	R10	—	207.25
39	615.25	615.25	R11	—	215.25
40	623.25	623.25	R12	—	223.25
41	631.25	631.25			

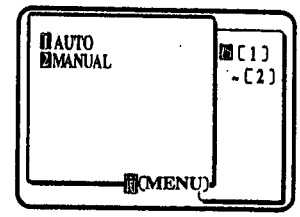
PRE-TUNING OF BUILT-IN TV TUNER (VT-MX748E(GK)IU ONLY)

Note: *You can change your own programme number accordings to your wish after pre-tuning your VCR. For example, if you want to interchange programme number 04 to programme number 06, follow the procedure below.*

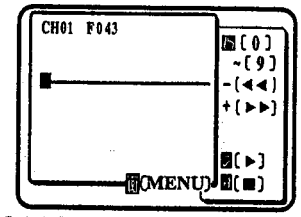
■ To change the programme number



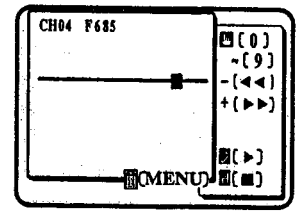
❶ Press the MENU button, and then press ④ for channel preset operation.



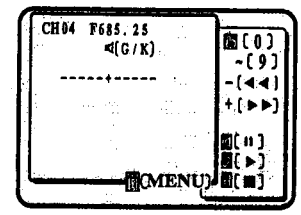
❷ Press the ② button to select the channel preset manually.



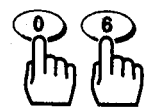
❸ Press the CH (▲/▼) button to select the programme number you wish to change.

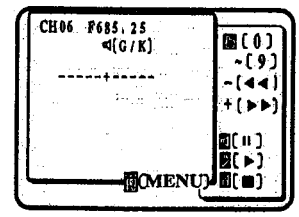


❹ Press the PLAY button.
The following display will appear in TV screen.
At this stage, you can change the programme number

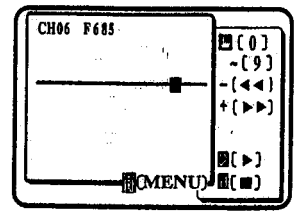


❺ Press the ⓪ and ⑥ button to change the programme number.
Programme number 04 will change position to programme number 06.





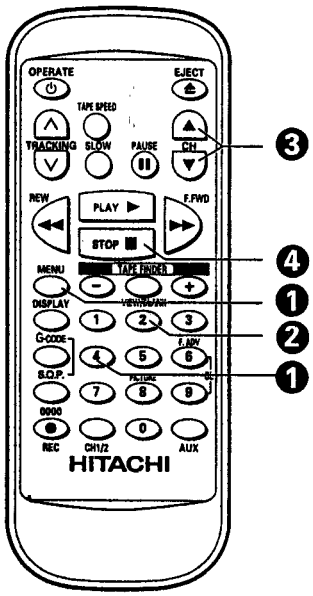
❻ Press the PLAY button again to store the programme number.



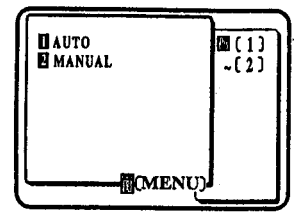
❼ To end, press the MENU button.

Note: *You can rearrange the desired channels by eliminating unwanted preset channels for channel up/down tuning.*

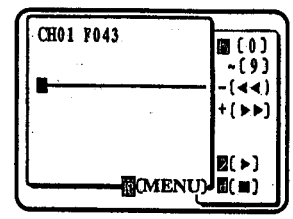
■ Eliminating unwanted preset channels



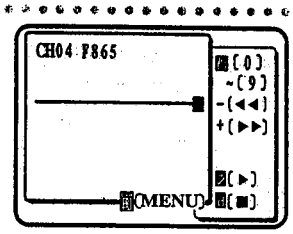
1 **Press the MENU button, and then press ④ for channel preset operation.**



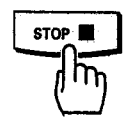
2 **Press the ② button to select the channel preset manually.**

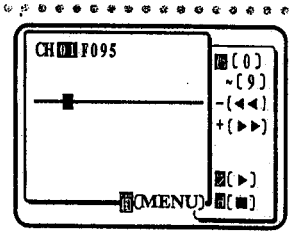


3 **Press the CH (▲/▼) button until an unwanted station is found.**
The selected channel number and channel frequency will appear in the VCR's display.



4 **Press the STOP button to clear the channel.**
- The flashing channel number in the VCR's display shows that it has been eliminated from memory.





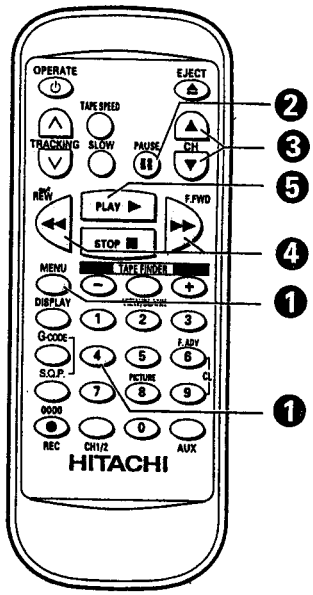
5 **Repeat the above steps for other channels, if needed.**

6 **To end, press the MENU button.**

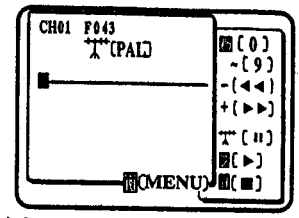
Note: Follow the steps in "To Select Channel Preset Manually" in order to memorise new channels .

PRE-TUNING OF BUILT-IN TV TUNER (VT-MX4080EM ONLY)

■ To select Channel Preset



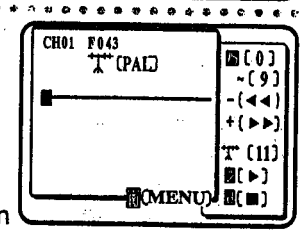
1 **Press the MENU button, and then press ④ for channel preset operation.**



2 **Press the PAUSE button to select the broadcasting system.**

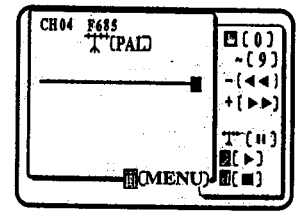
- The display, changes in the order (PAL) → (USA) → (JAPAN) each time the button is pressed.

(PAL) : For pre-tuning to a PAL/SECAM broadcast.
(USA) : For pre-tuning to U.S.A. or Canadian (NTSC) broadcast.
(JAPAN) : For pre-tuning to a Japanese (NTSC) broadcast.



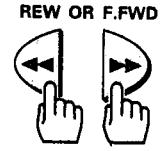
3 **Press the CH (▲/▼) button to select the channel number to be memorized.**

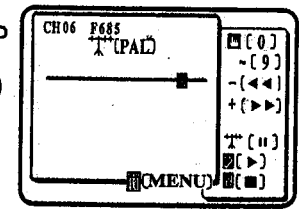
- The screen show that channel number 4 has been selected.
- The selected channel number and channel frequency will appear in the VCR's display.



4 **Press the REW or F.FWD button to start tuning. At a channel that is broadcasting, the picture appears on the TV screen.**

- If the programme displayed is different from the channel to be preset, press the REW or F.FWD button again.



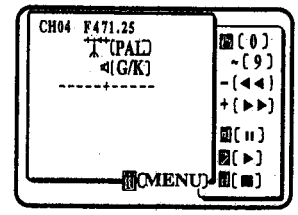


- Pressing the F.FWD button scans CCIR channels in the order VHF (2-4) → CATV (X–Z+2) → CATV (S1-S10) → VHF (5-12) / CATV (S11-S40) → UHF (21-69). Pressing the REW button scans in the reverse order.

5 **Press the PLAY button when the desired channel is reached.**

The following display will appear on the TV screen, and "–" will be displayed in the VCR's display.

Note: If the TV programme broadcast by a preset channel does not appear clearly, press the REW or F.FWD button to fine tune the channel.



After fine tuning is completed, press the PLAY button again.
If the sound is abnormal in this step while the picture is clear, change the sound mode. (Only for PAL/SECAM broadcast)

Press the PAUSE button to switch between sound" ◁ (G/K)" and sound " ◁ (I)". The sound should now become normal.
Press the PLAY button to store the sound mode in memory.

- Perform this procedure and make the sound of all other necessary channels normal.

6 **Follow the same steps as explained in step 3 through 5 above for other channels.**

You can preset up to 49 channels in memory.

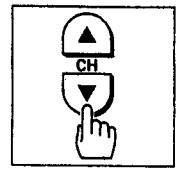
7 **After having completed tuning to all required channels, press the MENU button.**

The channels preset in memory as shown in the above can be selected with the CH (▲/▼) button.

MENU

■ Programme selection

The programme up and down controls on the remote control let you advance directly to the next higher or lower programmed channel.



VHF, UHF and CATV channels direct preset

Press the 10-key buttons on the remote control unit instead of step 4 on page 20 to preset desired VHF, UHF and CATV channels. For example, press "⓪" "④" "⑧" for the channel frequency of 48.25 MHz.

- To preset UHF channel 39 in channel number 04, for example, press the CH (channel) button to display channel number "04" and use the number buttons on the remote control unit to enter the frequency of this channel, then press the PLAY button to store it in memory.
- To preset CATV channel S5 in channel number 30, for example, press the CH (channel) button to display the channel number "30" and use the number buttons on the remote control unit to enter the frequency of this channel, then press the PLAY button to store it in memory.

The following table shows channels numbers corresponding to the video frequencies used in the CCIR and C.I.S when the channels are preset using the above direct preset method.
For example, when "⑤", "⑤" and "①" of the 10-key buttons are pressed, channel 31 is received in the CCIR and C.I.S.

Note: The following table shows the exact frequencies of channels, but due to drift, the on-screen display may be 0.05 MHz above or below these frequencies.

CATV channels (PAL)

10-key direct preset channel frequency					
Channel number	CCIR	C.I.S	Channel number	CCIR	C.I.S
X	69.25	—	S15	259.25	—
Y	76.25	—	S16	266.25	—
Z	83.25	—	S17	273.25	—
Z+1	90.25	—	S18	280.25	—
Z+2	97.25	—	S19	287.25	—
S1	105.25	—	S20	294.25	—
S2	112.25	—	S21	303.25	—
S3	119.25	—	S22	311.25	—
S4	126.25	—	S23	319.25	—
S5	133.25	—	S24	327.25	—
S6	140.25	—	S25	335.25	—
S7	147.25	—	S26	343.25	—
S8	154.25	—	S27	321.25	—
S9	161.25	—	S28	359.25	—
S10	168.25	—	S29	367.25	—
E5	175.25	—	S30	375.25	—
E6	182.25	—	S31	383.25	—
E7	189.25	—	S32	391.25	—
E8	196.25	—	S33	399.25	—
E9	203.25	—	S34	407.25	—
E10	210.25	—	S35	415.25	—
E11	217.25	—	S36	423.25	—
E12	224.25	—	S37	431.25	—
S11	231.25	—	S38	439.25	—
S12	238.25	—	S39	447.25	—
S13	245.25	—	S40	455.25	—
S14	252.25	—	S41	463.25	—

VHF and UHF channels (PAL)

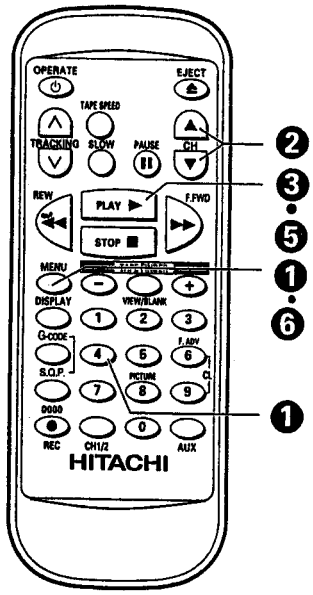
10-key direct preset channel frequency					
Channel number	CCIR	C.I.S	Channel number	CCIR	C.I.S
1	—	—	42	639.25	639.25
2	48.25	—	43	647.25	647.25
3	55.25	—	44	655.25	655.25
4	62.25	—	45	663.25	663.25
5	175.25	—	46	671.25	671.25
6	182.25	—	47	679.25	679.25
7	189.25	—	48	687.25	687.25
8	196.25	—	49	695.25	695.25
9	203.25	—	50	703.25	703.25
10	210.25	—	51	711.25	711.25
11	217.25	—	52	719.25	719.25
12	224.25	—	53	727.25	727.25
13	—	—	54	735.25	735.25
14	—	—	55	743.25	743.25
15	—	—	56	751.25	751.25
16	—	—	57	759.25	759.25
17	—	—	58	767.25	767.25
18	—	—	59	775.25	775.25
19	—	—	60	783.25	783.25
20	—	—	61	791.25	791.25
21	471.25	471.25	62	799.25	799.25
22	479.25	479.25	63	807.25	807.25
23	487.25	487.25	64	815.25	815.25
24	495.25	495.25	65	823.25	823.25
25	503.25	503.25	66	831.25	831.25
26	511.25	511.25	67	839.25	839.25
27	519.25	519.25	68	847.25	847.25
28	527.25	527.25	69	855.25	855.25
29	535.25	535.25	R 1	—	49.75
30	543.25	543.25	R 2	—	59.25
31	551.25	551.25	R 3	—	77.25
32	559.25	559.25	R 4	—	85.25
33	567.25	567.25	R 5	—	93.25
34	575.25	575.25	R 6	—	175.25
35	583.25	583.25	R 7	—	183.25
36	591.25	591.25	R 8	—	191.25
37	599.25	599.25	R 9	—	199.25
38	607.25	607.25	R10	—	207.25
39	615.25	615.25	R11	—	215.25
40	623.25	623.25	R12	—	223.25
41	631.25	631.25			

	Broadcasting system	
	NTSC	NTSC (JAPAN)
VHF channel frequency	55.25~ 211.25MHz (2~13CH)	91.25~ 217.25MHz (1~12CH)
UHF channel frequency	471.25~ 801.25MHz (14~69CH)	471.25~ 765.25MHz (13~62CH)
CATV channel frequency	73.25~ 799.25MHz (A-6~W+84)	109.25~ 463.25MHz (C13~C63)

PRE-TUNING OF BUILT-IN TV TUNER (VT-MX4080EM ONLY)

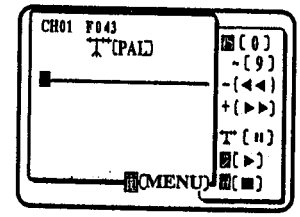
Note: *You can change your own programme number accordings to your wish after pre-tuning your VCR. For example, if you want to interchange programme number 04 to programme number 06, follow the procedure below.*

■ To change the programme number

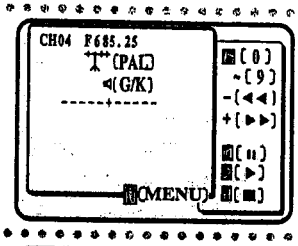


❶ Press the MENU button, and then press ④ for channel preset operation.

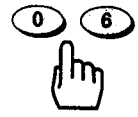
❷ Press the CH (▲/▼) button to select the programme number you wish to change.

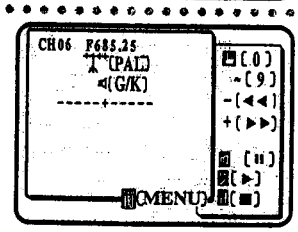


❸ Press the PLAY button.
The following display will appear in TV screen.
At this stage, you can change the programme number

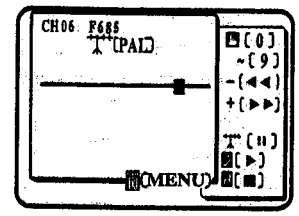


❹ Press the ⓪ and ⑥ button to change the programme number.
Programme number 04 will change position to programme number 06.





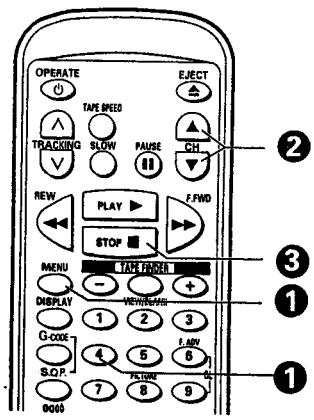
❺ Press the PLAY button again to store the programme number.



❻ To end, press the MENU button.

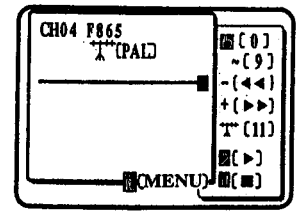
Note: *You can rearrange the desired channels by eliminating unwanted preset channels for channel up/down tuning.*

■ Eliminating unwanted preset channels

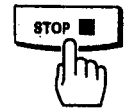


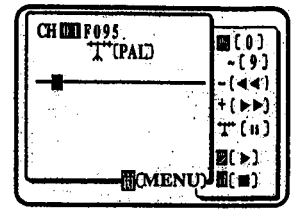
❶ Press the MENU button, and then press ④ for channel preset operation.

❷ Press the CH (▲/▼) button until an unwanted station is found.
The selected channel number and channel frequency will appear in the VCR's display.



3 **Press the STOP button to clear the channel.**
- The flashing channel number in the VCR's display shows that it has been eliminated from memory.





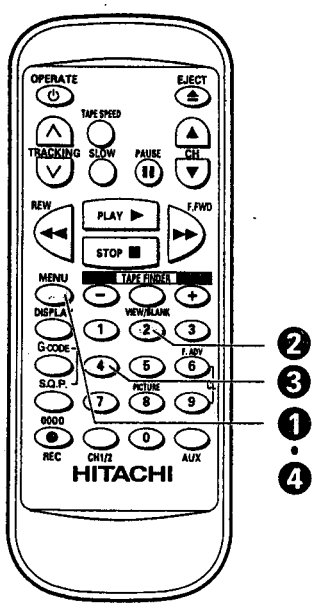
4 **Repeat the above steps for other channels, if needed.**

5 **To end, press the MENU button.**

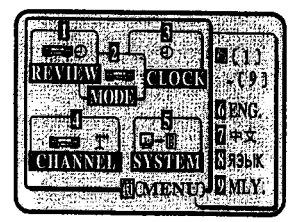
Note: Follow the steps in "To Select Channel Preset" in order to memorise new channels .

PRE-TUNING OF BUILT-IN TV TUNER

■ To select RF OUT SYSTEM

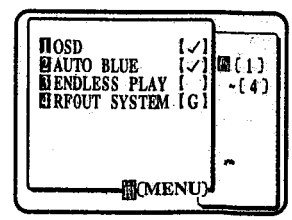


1 **Press the MENU button.**
The main on-screen menu will appear on the TV screen.



2 **Press the ② button to select the VCR MODE.**

3 **Press the ④ button to select the RF OUT SYSTEM to match your TV.**
- If you TV corresponds to PAL system G, select " RF OUT SYSTEM G".
- Select " RF OUT SYSTEM I" if your TV is PAL system I.
- Select " RF OUT SYSTEM K" if your TV is PAL system K.



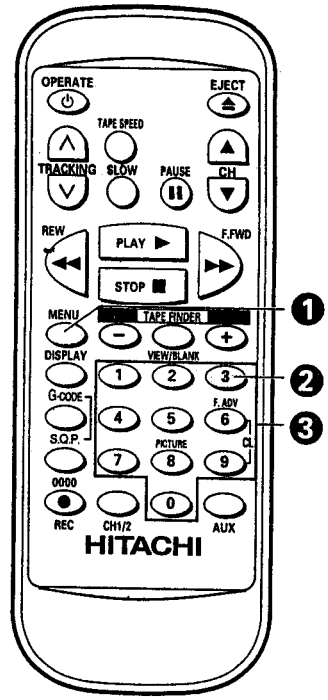
Version	RF OUT SYSTEM
Thai, Middle East, Singapore, Malaysia	G
Hong Kong	I
C.I.S	K

4 **To end, press the MENU button.**

SETTING THE CLOCK

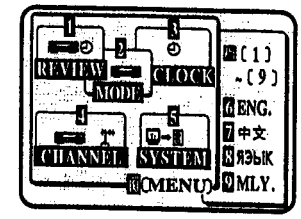
When the clock of the VCR is set correctly, it permits timer recording

■ To set the clock



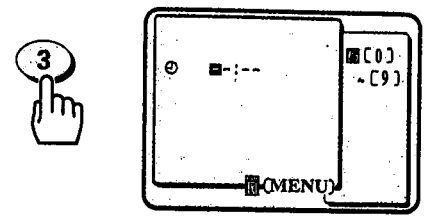
Note: Turn the VCR and TV on, then set the TV to the video channel.
(Please refer to page 13 for "VIDEO PROGRAMME NUMBER SETTING").

MENU



❶ Press the MENU button.
The main on-screen menu will appear on the TV screen.

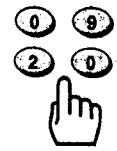
❷ Press the ③ button to bring up the CLOCK SET menu.

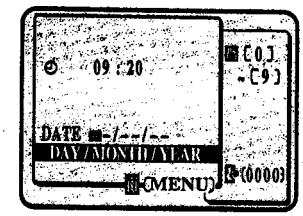


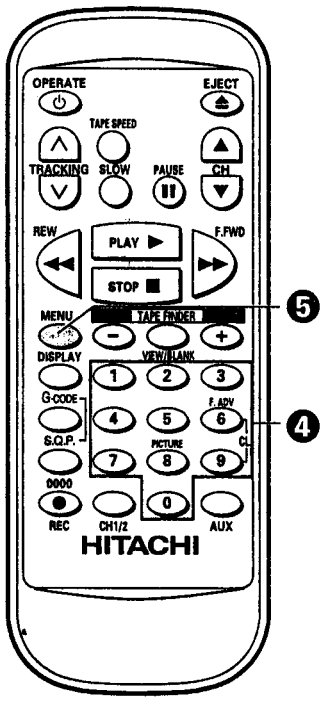
❸ Press the number buttons to fill the hour and minutes.

- For times with only one number (1—9) press the ⓪ button first, then the hour or minute. For example, if it is now 9:20, press ⓪ ⑨ ② ⓪.

Example

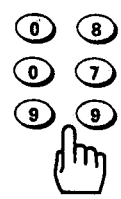


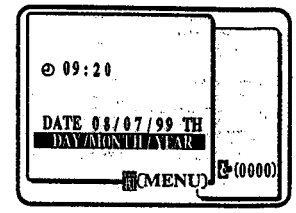




4 **Press the number buttons to fill in the number of the day, then the month, then the year.**

- For dates with only one number (1—9) press the 0 button first, then the date.
  For example, if today is July 8 1999, press 0 8 0 7 9 9. The correct day of the week will appear automatically.





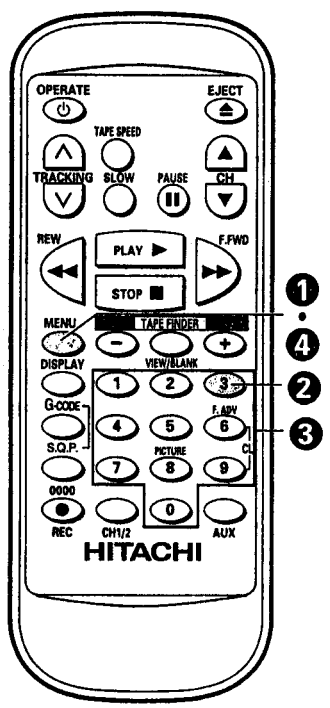
5 **Press the MENU button.**
The VCR clock is now set, and should show the correct time of day on the VCR's display.

Notes:

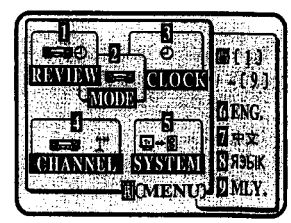
- *If you press the wrong digit, press the 0000 button repeatedly until the incorrect digit changes to "–", then enter the correct digit.*
- *You have about one minute to perform each step in the procedure. If you do not proceed to the next step within this time, all entries are erased and you must start again.*
- *The clock must be set to the correct time before programming the timer for unattended recording or using the Instant Recording Timer (IRT) feature.*
- *If power is interrupted for more than 30 minutes, "– – : – –" will appear in the display and clock will need to be reset.*

FIRST TIME SETUP

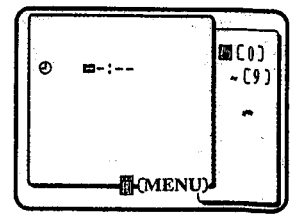
■ To correct the time after setting



1 **Press the MENU button.**



2 **Press the 3 button to bring up the CLOCK SET menu.**

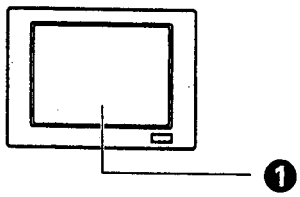


3 **Perform steps 3 and 4 in "To set the clock" on page 24 and 25. Then correct the time/date.**

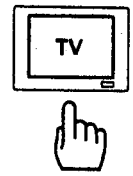
4 **After correcting the time/date, press the MENU button. The correct time appears in the display of VCR.**

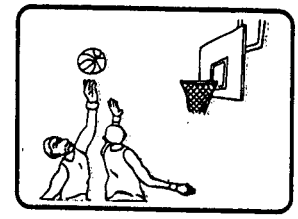
PLAYBACK

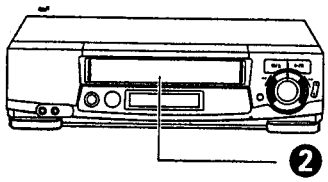
■ To playback a recorded tape



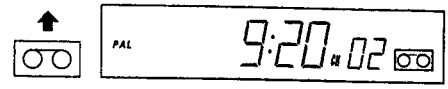
❶ Turn on the TV and select the video programme number (described on page 13).
Or, if the TV and VCR are connected with an audio/video cable, set the TV to AUX or VIDEO.

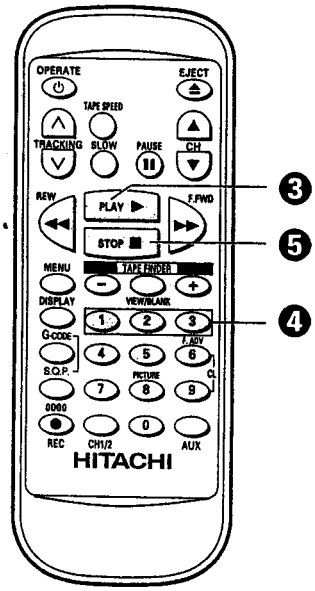






❷ Insert a recorded tape.
The power comes on automatically and the tape indicator lights on the display.
- *When a cassette without its safety tab is inserted, playback starts automatically.*

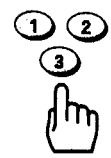




❸ Press the PLAY button to start playing the tape.
When you press the PLAY button and a cassette has not been inserted the " TAPE " will flash in the VCR display to warn you.

This VCR's output colour system can be selected to match the TV connected by pressing MENU and then ⑤ button.

❹ Press ① through ③ to select the PLAY SYSTEM.

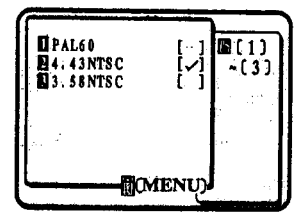


• When an NTSC recorded tape is played back;

PAL 60: Press " ① " to select PAL 60 when connecting this VCR to a PAL colour TV providing vertical sync adjustment circuitry (or volume) for 60 Hz.

4.43 NTSC: Press " ② " to select 4.43 NTSC when connecting the multi-colour TV which does not have NTSC 3.58 but only 4.43.

3.58 NTSC: Press " ③ " to select 3.58 NTSC when an NTSC 3.58 signal is output.



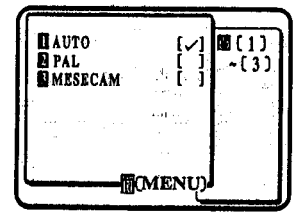
NTSC recorded tape

• When the PAL/MESECAM recorded tape is played back;

AUTO: Press " ① " to select AUTO ordinarily. If a normal picture does not appear when playing back, press " ② " or " ③ " button to select PAL or MESECAM.

PAL: Press " ② " to select PAL when you play back a PAL recorded tape.

MESECAM: Press " ③ " to select MESECAM when you play back a MESECAM recorded tape.

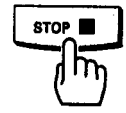


PAL/MESECAM recorded tape

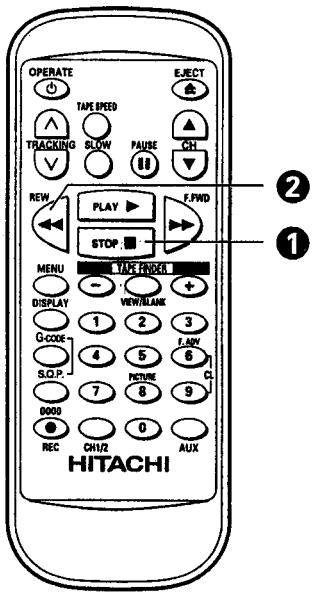
Press the MENU button to end the selection.

Note: During playback of the SECAM recorded tape, a selection of AUTO and MESECAM is provided. In order to get optimum quality, select MESECAM.

❺ Press the STOP button to end playback.



■ Rewinding the tape



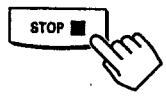
When the video cassette reaches the end of the tape, the VCR will stop and automatically rewind the tape.

- If you press the OPERATE button while the tape is rewinding, the power will not shut off until the tape has been completely rewound.

You may also rewind the tape manually at any time.

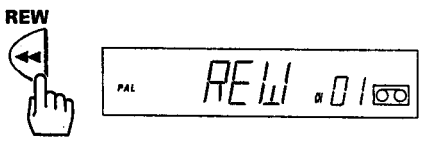
Manual Rewind

1 Press the STOP button to end playback.



2 Press the REW button.
The VCR rewinds the tape all the way to the beginning, then stops.
Note: When a cassette has not been inserted, the "TAPE" will flash in the VCR display to warn you.

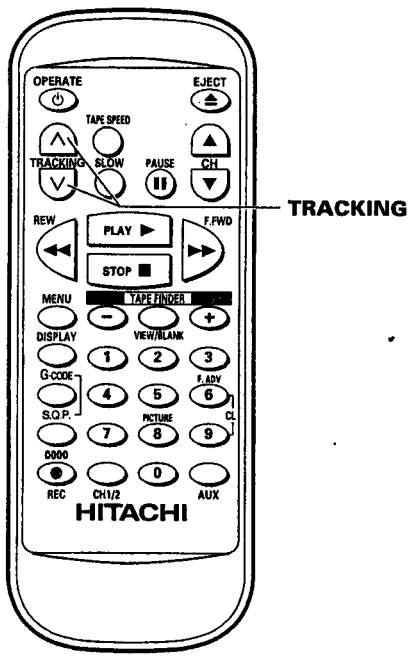
- Press the STOP/EJECT button on the VCR or on the remote control to eject the tape.



Movie Return

If your videocassette has the safety tab removed, the VCR will stop and automatically rewind the videocassette, eject it, and turn off the power when it reaches the end of the tape or a blank section of tape which lasts for more than 30 seconds.
Note: *This function works only in PLAYBACK mode, not in RECORDING mode.*

■ To remove noise from the picture

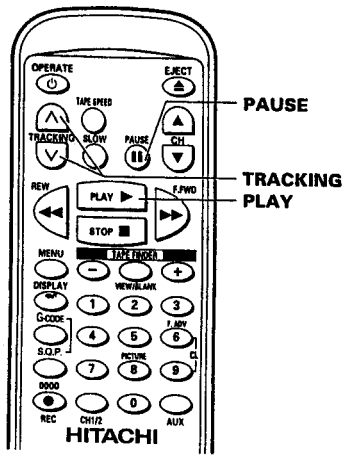


Auto Tracking

When playback is started, the auto tracking function operates and adjust tracking automatically so the picture is optimized. Auto tracking may not operate correctly when the tape is scratched or the recorded condition is poor.
In these case, press the TRACKING ∧ / ∨ button to adjust tracking manually.

SPECIAL PLAYBACK EFFECTS

■ Variable speed playback



Still Playback (Pause)

Press the PAUSE button on the remote control to still the tape during play.
The picture will "freeze". You may see noise or interference on the screen. This is normal.

PAUSE

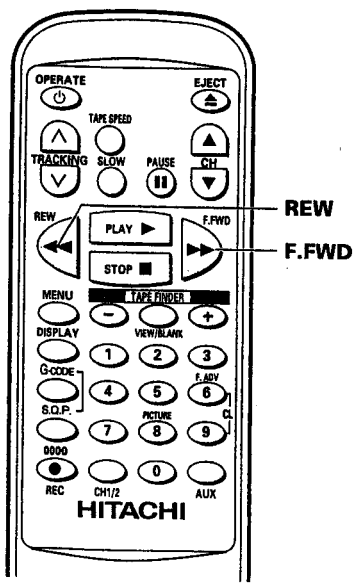
- To resume play, press the PLAY button or PAUSE button again.

Note: *The sound is muted and cannot be heard during "Special Playback Effects".*

Notes:

- *After 1 minute in the PAUSE mode, the VCR automatically switches to the STOP mode to protect the tape.*
- *If the screen jitters during PAUSE, press the TRACKING ∧ or ∨ button to minimize the jitter.*
- *If noise bars appear on the TV screen during the PAUSE mode, first set the VCR to the SLOW mode by pressing the SLOW button during playback and then press the TRACKING ∧ or ∨ button on the remote control to minimize the noise bars.* (see page 29)

■ Rewinding or fast forwarding a tape at high speed



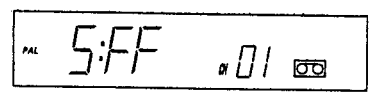
This function rewinds or fast-forwards E-180 tape for about 120 seconds. This time period will vary for different types of tape.

REW

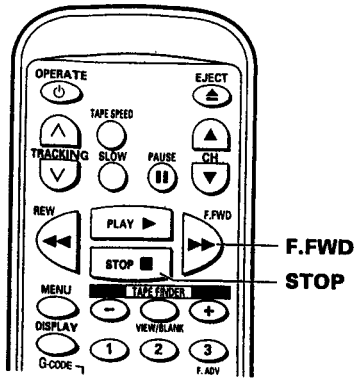
Press the REW or F.FWD button, then press it again.
To stop the tape, press the STOP button.

Note: *During super rewind/fast-forward, there will be an interval of 5 seconds between the time the stop button is pressed and the tape actually stops. This is designed to protect the tape. To stop the tape earlier, press the REW or F.FWD button to restore the normal rewind/fast-forward speed, then press the stop button.*

F.FWD



■ Fast Forwarding the tape

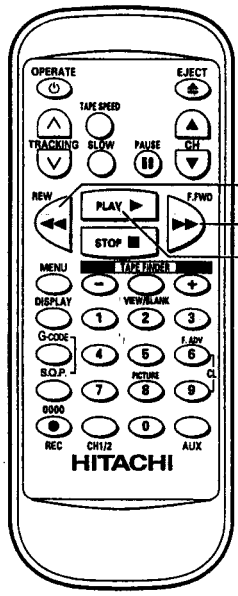


This function works only in stop mode with cassette in.

Press the F.FWD on the remote control.
Note: When a cassette has not been inserted, the "TAPE" will flash in the VCR display to warn you.

F.FWD

To end, press STOP button.



Visual Search

This function let you search backward and forward through the videotape while viewing it.

During play:

Press the REW button to search in reverse.

Press the F.FWD button to search ahead.

- Press the PLAY button to return to normal playback.

Press REW or F.FWD and hold it; you can search backward or forward through the tape at a higher speed while viewing it.

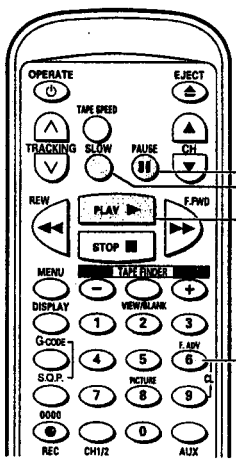
- Press PLAY and REW, then hold REW for backward search at a higher speed.
- Press PLAY and F.FWD, then hold F.FWD for forward search at a higher speed.
- Release REW or F.FWD to return to normal playback.

Notes:

- The playback picture will have some horizontal noise bars in the picture.
- The quality of the picture played back in the PAL LP, NTSC SP or NTSC EP still/search/slow/frame advance modes is slightly inferior and jitter (shaking), skew and/or disappearance of colour may occur, and with some TVs, the picture may also be vertically unstable.

REW

F.FWD



Slow Motion

Press the SLOW button during playback to slow the playback speed.

Press the PLAY button to return to playback at a normal speed.

Notes:

- Use the TRACKING (∧ or ∨) to minimize any visual noise bands on the screen.
- After 1 minute in slow motion playback, the VCR will stop the tape automatically to prevent damage to the tape and VCR.

SLOW

PLAY

Frame Advance

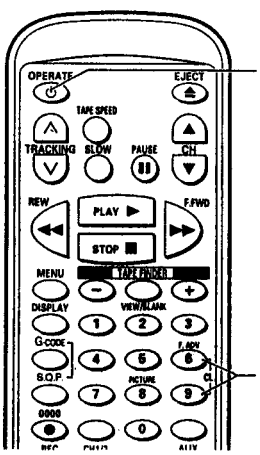
Press the PAUSE button to still the tape during playback.

Press the F.ADV button to view the picture one frame at a time.

- Press the PAUSE button to resume play.

PAUSE

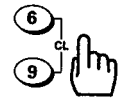
F.ADV



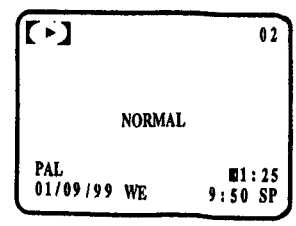
Child Lock

This function is to lock the current VCR mode during recording, playback, etc.

Press the button number ⑥ and button number ⑨ on the remote control unit simultaneously.



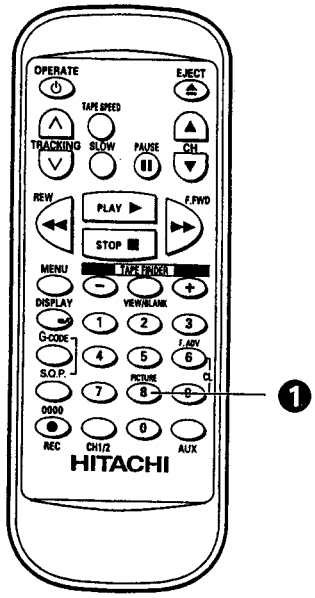
When the mode is locked, "LOC" appears in the VCR display and [ ] appears on the TV screen if the VCR status is called up.



- During the child lock mode, the VCR accepts the remote control operations but it does not accept any button operations on the VCR.

To release the child lock, press the OPERATE button on the remote control unit or press the button number 6 and button number 9 simultaneously again.

SPECIAL PLAYBACK EFFECTS



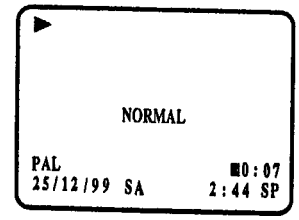
Smart Picture

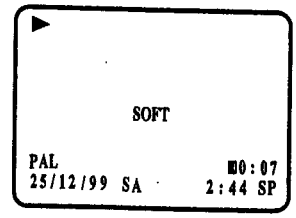
1 This function will enable you to select the sharpness and softness of the picture quality during playback.

- Press the (8) button during playback. The picture sharpness will change from normal to soft.
- Press the (8) button again, the sharpness will change to normal.
- Press DISPLAY button to check the selection.

Note:

- This feature is effective if watching poor quality tapes.

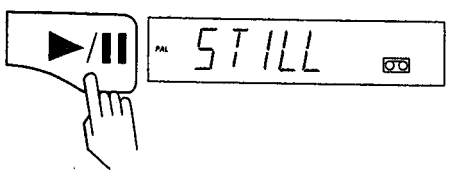




SHUTTLE CONTROLS

■ Using the shuttle knob

The shuttle feature lets you control all the playback functions — PLAY, PAUSE, SLOW MOTION, and SEARCH — using one convenient knob.



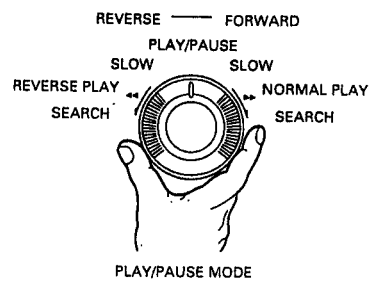
How to use the shuttle knob

A Turn the shuttle knob during playback or still playback (pause).

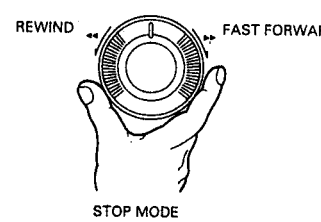
- As you turn the knob, you get different playback speeds and forward or reverse motion.
- Try using the shuttle to explore backward and forward through your next video.
- As you release the shuttle knob the VCR returns to play or still play.

B Turn the knob while in the stop mode to fast forward or rewind the tape.

- The tape continues to be wound even after you release the dial.



PLAY/PAUSE MODE



STOP MODE

Notes:

- If noise bars appear on the TV screen during the SLOW/STILL modes, turn and hold the shuttle knob in the SLOW position, then press the TRACKING (∧ or ∨) button on the remote control to minimize the noise bars. The noise bars are then eliminated automatically in the STILL mode.
- Since thin videotape is used in T-180 and longer cassettes, do not repeatedly perform the following operations with these tapes.
  - Fast forward, rewind, slow play
  - Insertion and ejection of tapes.

USING THE "TAPE FINDER" FEATURE

■ Tape Finder Function

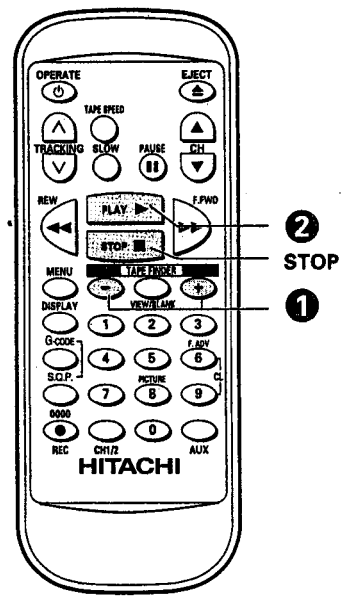
TAPE FINDER function allows you to search for a programme you want to view or the point which you want to start recording on tape, with the following three functions.

- INDEX SEARCH : To locate the beginning of a recorded programme.
- BLANK SEARCH : To locate the beginning of a blank (non-recorded) section on tape.
- EASY VIEW : This switches fast forward or rewind to visual search so that you can search for a scene you want to view while scanning the pictures.

■ To find specific sections on a tape using the "INDEX" feature

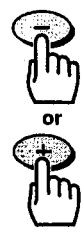
Jump to an Index Mark with INDEX

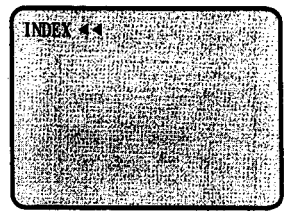
A quick way to access specific programme segments is with the index search feature. This will let you to search through a tape that as several recordings on it by using the INDEX "mark". This function works only on the recording tape with indexing on it. While recording, you can create an INDEX mark every time you press the REC or REC/IRT button. The index signal is not recorded if the PAUSE button is pressed and released during recording.

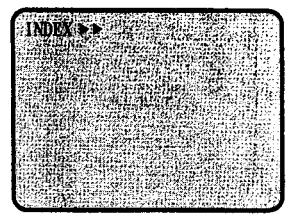


1 Press the ⊖ button for fast rewind or the ⊕ button for fast forward to begin the index search.

- The tape rewinds or fast forwards until an index mark is detected. During this search, the word INDEX is displayed at the top of the screen.
- When the VCR finds an index mark, it plays 15 seconds of the programme that begins at that spot.

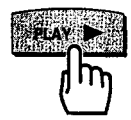






2 If this is the programme you were looking for, press the PLAY button for normal playback.

- To stop the index search before an index mark is reached, press the STOP button.



Note: *If there are no index marks on the tape, the VCR will just rewind to the beginning or fast forward to the end.*

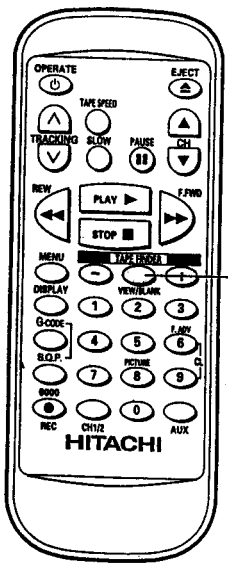
USING THE "TAPE FINDER" FEATURE

■ To locate the beginning of a blank section (BLANK SEARCH)

This function searches for a non-recorded section of remaining tape, or unused tape, and stops the tape when it locates such a section.

Notes:

- BLANK SEARCH cannot be operated with a cassette without a safety tab.
- BLANK SEARCH may not operate when a blank section lasts no more than five minutes.
- BLANK SEARCH will not be engaged in the following sections since they are not recognized as blanks:
  — Sections with noise
  — Sections where only sound has been recorded
  — Sections where previous recordings have not been totally erased

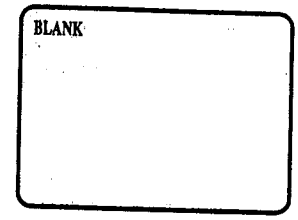


VIEW/ BLANK

Press the (VIEW/BLANK) button in the STOP mode.

The BLANK SEARCH screen will appear and the tape will fast forward automatically.

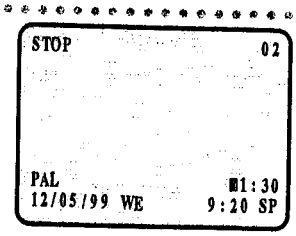
- The blank which is the nearest the current tape position is searched for.
- When a blank is detected, the tape will automatically rewind to the beginning of the blank.



Notes:

- When a cassette without a safety tab is inserted, "TAb" will flash in the VCR display for several seconds and the cassette will be ejected automatically.
- When a cassette has not been inserted, the "TAPE" will flash in the VCR display to warn you.

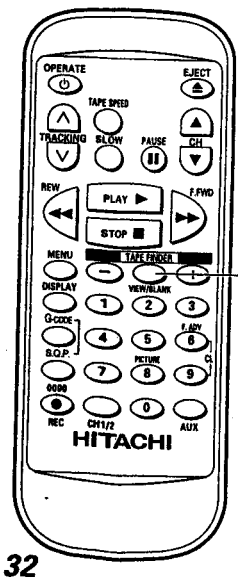
When the beginning of blank is located, the STOP screen will appear for five seconds and the tape will stop.



Note: Make sure that the tape is at the beginning of blank before you start recording or editing.

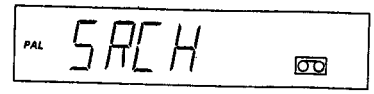
Cautions: Ensure the tape recording area is enough for your TV programme.

■ Switching rewind or fast forward to visual search (EASY VIEW)



VIEW/ BLANK

Hold down the (VIEW/BLANK) button during rewind (or fast forward), and the mode will switch to visual search, so that you can search for a scene you want to view while scanning pictures.

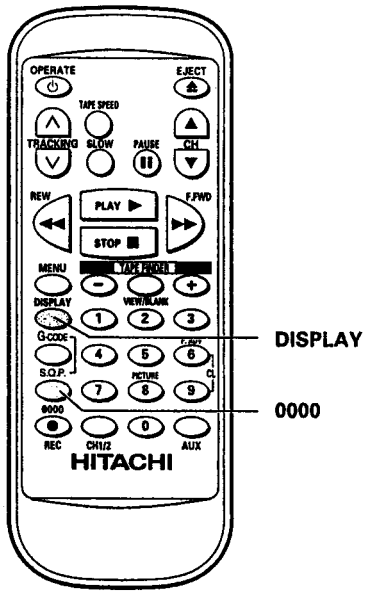


Hold down the (VIEW/BLANK) button during rewind:
The tape will be visually scanned in the reverse direction while the button is held.
Hold down the (VIEW/BLANK) button during fast forward:
The tape will be visually scanned in the forward direction while the button is held.

- When the button is released, the tape will rewind or fast forward again.

VIEWING THE ON-SCREEN DISPLAY

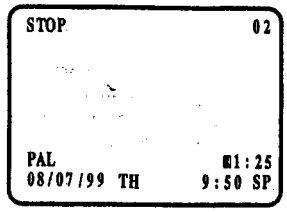
■ Switching between the clock, time counter and time of remaining tape

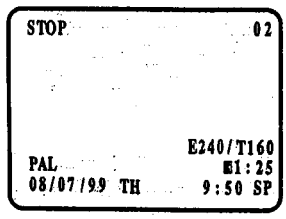


❶ Press the DISPLAY button to see the clock.

Note: *Immediately after the tape is inserted, "[cassette] – – : – –" will appear. 1 minutes after playback or recording is started, the tape remaining time is displayed.*

Press the 0000 button to select the type of the tape used. The correct remaining time will appear.

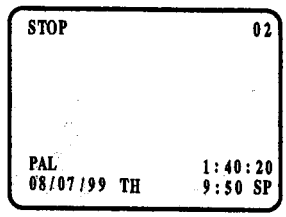


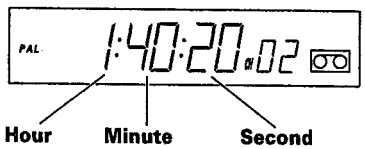


❷ Press the DISPLAY button a second time to see just the time counter.

Notes:

- *The linear time counter operates only if there is something recorded on the tape.*
- *The counter changes to 0:00:00 when the tape is ejected.*
- *The tape starts moving from 0:00:00 and counter indicates amount of elapsed time.*
- *The counter may not be able to count the time precisely with some types of tape and at particular positions of the tape.*

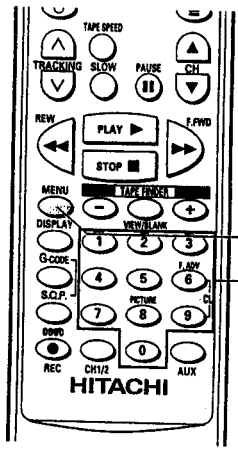




Notes:

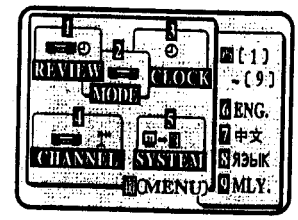
- *The tape remaining time is not displayed correctly for a tape without any recordings or tapes other than PAL/MESECAM E-30/60/120/180/240 AND NTSC T-30/60/120/160.*
- *The remaining time may not be displayed correctly during fast forwarding or rewinding.*
- *If you use an E-120/180/240 or T-120/160 tape that is wound to arround its middle position, it takes time until the tape remaining is displayed. Before using such a tape, fast forward or rewind it to display the tape remaining in advance.*

GRAPHIC ON-SCREEN DISPLAY



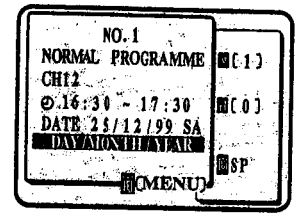
Pressing the MENU button will display various menus on the TV screen.

1. Turn the VCR and the TV on, then set the TV to the pre-tuned video programme number (described on page 13).
2. Point the remote control at the receiver on the front of the VCR.
3. Press the MENU button. The "menu", as illustrated, will appear on the TV screen. Press one of ① ~ ⑨ to select the required display.



❶ Checking (reviewing) the programme information

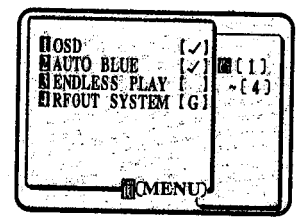
- Press ①. The TV screen will display for 1 minute the information you entered for the lowest programme number.
- Press ① again if you want to view the next programme information.
- Pressing ⓪ will clear the programme.
- Press the MENU button to return to the original picture.



❷ Video mode setting

You can change the VCR mode as required.

- Press ②. The "menu" as illustrated, will appear on TV screen.
  Press ① through ④ to select the required function.



■ OSD on (√) or off ( )

Press ① to change.

(√): Whenever you change the mode, the new mode is automatically displayed on the TV screen for a few seconds.

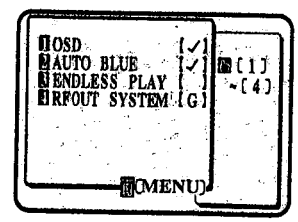
( ): The OSD will be switched off and nothing will be displayed on the TV screen. When this is selected, no operation mode will be displayed on the TV screen if the VCR is operated. This mode is useful to prevent recording of the On-Screen Display during tape copying.

NOTE: If the DISPLAY button is pressed the following are obtained.

1st press ····· Calls up the mode display on TV screen.

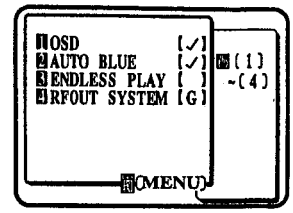
2nd press ····· On-screen display changes from the tape remaining to counter display.
VCR's display changes from clock to counter display.

3rd press ····· Clears the display.



■ AUTO BLUE on (√) or off ( )

Press ② to change.

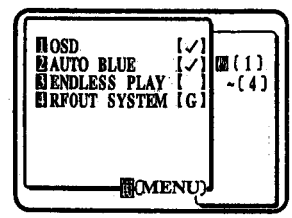


(√): The TV screen becomes blue when receiving a channel on which a signal is not being broadcast or a channel on which a weak signal is being broadcast.

( ): The TV screen does not become blue.

■ ENDLESS PLAY on (√) or off ( )

Press ③ to change.

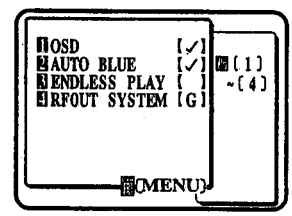


(√): You can play the tape from the beginning to the end repeatedly. While in the endless play, you can perform still play, frame advance and visual search operations, however, this does not mean switching off the endless play feature.
To switch off the endless play, you must select off ( ) with this display.

( ): The endless play feature is switched off.

■ RF OUT SYSTEM (G),(I) or (K)

Press ④ to change.



(G): Select (G) if your TV corresponds to PAL system G.

(I): Select (I) if your TV corresponds to PAL system I.

(K): Select (K) if your TV corresponds to PAL system K.

❸ Setting the clock, refer page 24 and 25 for details explanation.

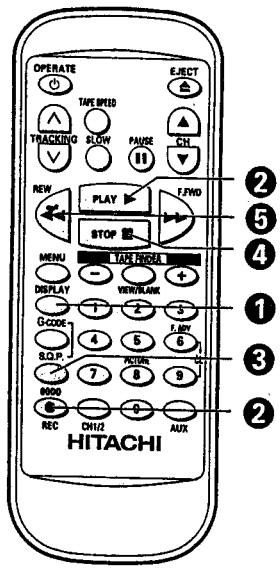
❹ To select Channel Preset automatically or manually, refer page 15 to 23 for details explanation.

❺ Selection of PLAY SYSTEM, refer to page 26 and selection of RECORDING SYSTEM, refer to page 38 for details explanation.

❻ To ❾ Selection of language, refer page 15 for details explanation.

INDEX WITH THE TIME COUNTER

■ To find specific sections on a tape

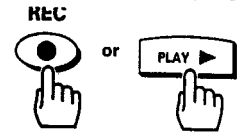


Indexing with the Time Counter

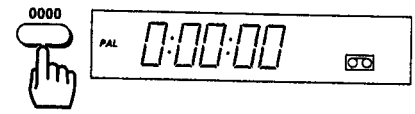
You can set the time counter to memorize a certain point in the video programming, and you can return to that point automatically.

❶ **Press the DISPLAY button two or three times.**
The counter will appear in the VCR's display.

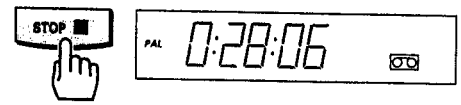
❷ **Begin recording or playing back a tape.**



❸ **At the point that you want to go back to, press the 0000 button.**
This resets the counter to 0:00:00.



❹ **Press the STOP button when you have done recording or playing back the tape.**



❺ **Press the REW button to rewind the tape.**
It will automatically stop at the spot where you cleared the counter in step ❸.
- Press the PLAY button to watch the tape from the selected spot.

Notes:

- *Press the DISPLAY button to turn the counter display off. The selected spot will stay in memory until you set a new one or until the tape is ejected.*
- *The counter memory function will also operate in the fast-forwarding mode.*
- *The counter memory function does not operate when the tape is rewound automatically with the RENTAL PLAY function is activated or when the ENDLESS PLAY display (✔) is selected.*
- *If a tape has sections recorded in both the NTSC and PAL/MESECAM formats, the counter memory function will not operate correctly.*
- *The tape will stop near the position where you want to start playback when the counter reads "0:00:00".*

RECORDING A PROGRAM

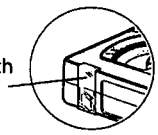
■ Before you record

Note: *The cassette safety tab must be in place in order to record.*

The VCR must be connected properly for recording. See the Basic Installation at the beginning of this manual.

To re-record on a cassette which has its safety tab removed.

Cover the hole with cellophane tape.

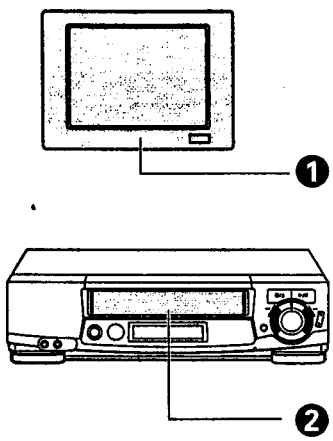


Copyright infringement warning

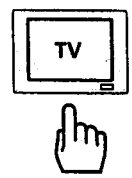
Most television programme and films are copyrighted. This means that someone has legal rights governing the reproduction and distribution of this material. In certain circumstances, copyright law may apply to private in-home taping of copyrighted materials. In most cases, it is possible to record for personal use, as long as you do not sell the material. You must act responsibility in this area – check into the matter if you are unsure.

■ Basic recording steps

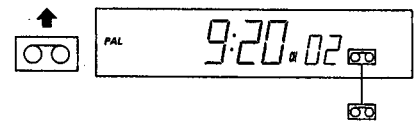
Note: *You may use a blank tape or you may record over a previously recorded (erasable) tape.*

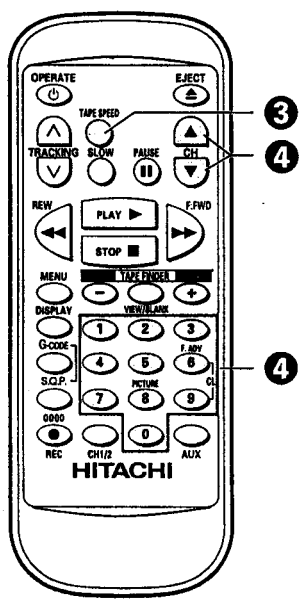


1 **Turn on the TV and select the video programme number (described on page 13).**
Or, if you are connected with an audio/video cable, set the TV to AUX or VIDEO.

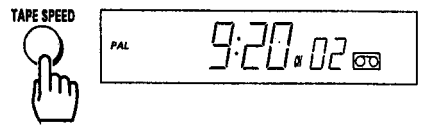


2 **Insert a blank or erasable tape.**
The power turns on automatically and the tape indicator lights on the display.
- If a cassette without its safety tab is inserted, playback starts automatically, and you cannot do the record operation.

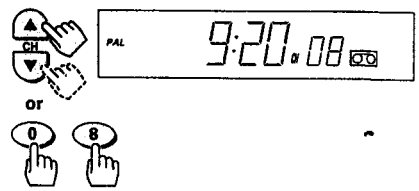




3 **Press the TAPE SPEED button to select SP (standard play, for the best picture quality) or LP (long play, for longest recording time on a single tape).**



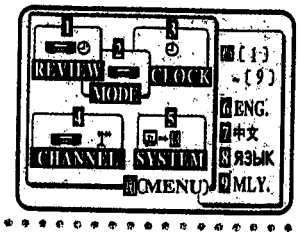
4 **Press the CH (▲ / ▼) button or the number buttons to select the channel you want to record.**
(Example: Select channel 8.)

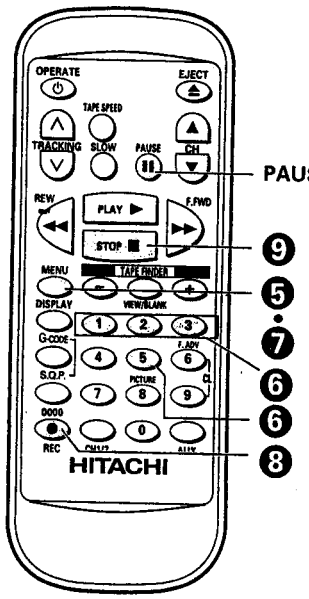


RECORDING A PROGRAM

5 **Press the MENU button.**

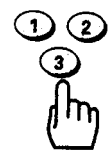
MENU





6 **Press 5 button then press 1 through 3 to select the RECORDING SYSTEM.**

and

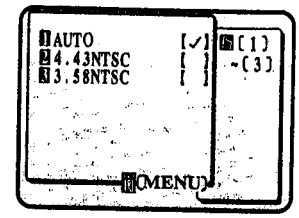


- When receiving an NTSC signal from external equipment for recording.

AUTO: Normally, press "1" to specify "AUTO". If no colour appears in the picture when playing back the recording with AUTO specified, press "2" or "3" to specify 4.43 NTSC or 3.58 NTSC.

4.43 NTSC: Press "2" to select 4.43 NTSC when an NTSC 4.43 signal is input.

3.58 NTSC: Press "3" to select 3.58 NTSC when an NTSC 3.58 signal is input.



When an NTSC signal is input

- When recording a PAL/MESECAM signal:

AUTO: Press "1" to select AUTO. Normally, "AUTO" is selected. The VCR detects the colour system of recording pictures automatically.
Note: If the sound is noisy or the colour disappears during recording with AUTO specified.

When a PAL/ MESECAM signal is received

PAL: Press "2" to select PAL to record in PAL system.

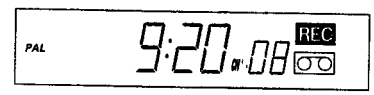
MESECAM: Press "3" to select MESECAM to record in MESECAM system.

Note: When the recording system is specified, the setting ( ) changes to (✔).

7 **Press the MENU button to end the setting.**

8 **Press the REC button on the remote control or the REC/IRT button on the VCR.**

•REC/IRT



Recording will start.

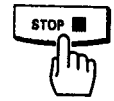
- *When a cassette without a safety tab is inserted "TAb" will flash in the VCR display for several seconds and the cassette will be ejected automatically.*

- *When you press the REC button and a cassette has not been inserted, the "TAPE" will flash in the VCR display to warn you.*
- *Recording will not start unless the cassette has the safety tab in place. If this tab has been removed, the VCR will eject the tape.*

Notes:

- *Press the PAUSE button to set the VCR to the recording pause mode. Press the button again to re-start recording.*
- *If you stay in PAUSE mode for more than 5 minutes, the VCR automatically switches to STOP mode to protect the tape.*

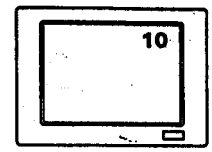
9 **Press the STOP button to end the recording.**



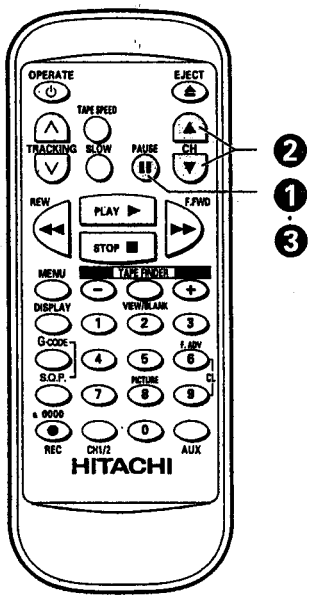
RECORDING A PROGRAM - RECORDING TIPS

■ To watch one program while recording another

❶ **Once you have set the VCR for recording, you can watch another program by switching channels using your TV controls.**

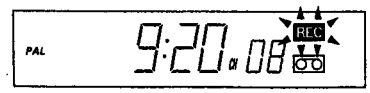


■ To change the channel being recorded

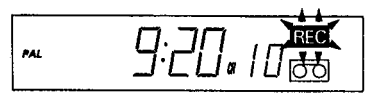


❶ **Press the PAUSE button to stop the recording temporarily. The REC indicator on the VCR will blink during Record/Pause.**

PAUSE

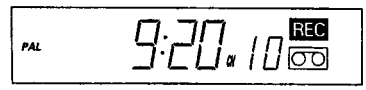


❷ **Press the CH (▲/▼) button or number buttons to change the channel to the one you prefer.**



❸ **Press the PAUSE button to continue recording.**

PAUSE

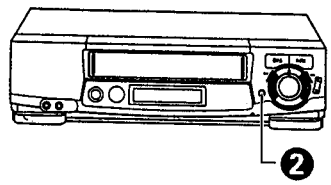


Automatic Indexing

Your VCR will automatically create an invisible **"INDEX"** mark every time you press the REC button while recording. During playback, the Index Search feature will let you move through a tape that has several recordings on it by searching for the **"INDEX"** mark.

INSTANT RECORDING TIMER

■ Using the Instant Recording Timer (IRT)



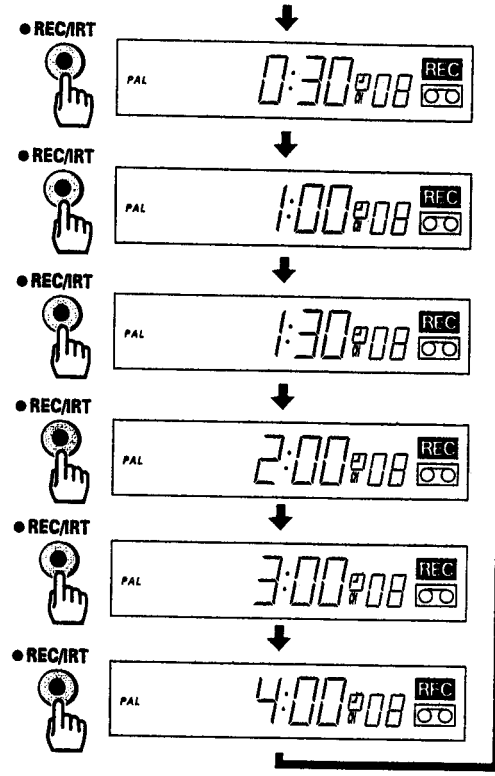
The Instant Recording Timer (REC/IRT button on the VCR) will let you make a simplified timer recording without having to use the programming timer. In order to set the IRT properly the clock must be set before starting.

❶ **Follow the steps ❶ through ❽ on "Basic recording steps" on pages 37 and 38.**

❷ **Press the REC/IRT button twice to indicate the recording time on the display.**

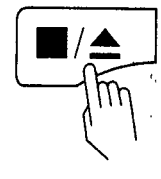
- You may increase the recording time pressing the REC/IRT button.
  IRT 0:30 → 1:00 → 1:30
  2:00 → 3:00 → 4:00
- While you are recording, the remaining recording time is shown on the VCR display.
- At the end of your recording, the display will read "0:00", recording will stop automatically, and the VCR will turn itself off.

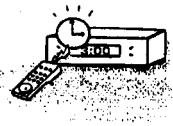
Note: The maximum recording time for IRT function is 4 hours.



To stop recording while in the IRT mode:

Press the STOP button.





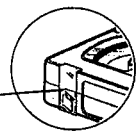
TIMER RECORDING

■ Setting the VCR to record later

Note: *The cassette safety tab must be in place in order to record.*

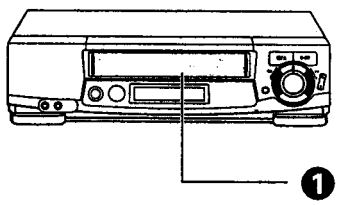
To re-record on a cassette which has its safety tab removed.

Cover the hole with cellophane tape.



The programmable electronic clock/timer permits the unattended recording of 8 preselected programmes within a period of 1 year, including the same programme(s) repeated on every day and the same programme(s) every week. It turns the unit on and off and selects the programme automatically.

■ Before you begin

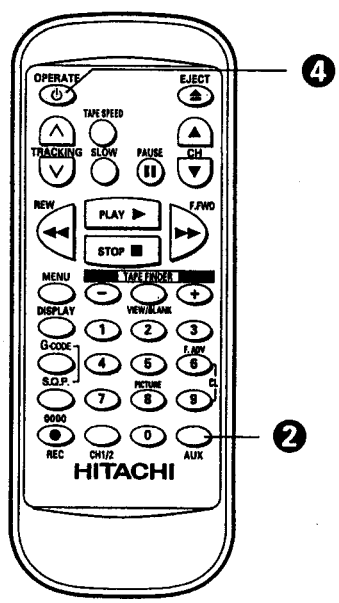


Assemble the information you need for timer recording:

- Be sure that the clock is set to the correct time
- Date and day of the programme
- Starting time
- Ending time
- Channel to be recorded
- Blank or erasable videocassette (safety tab intact)

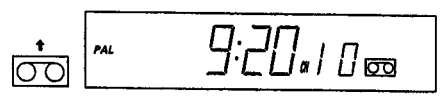
Timer Recording Steps

You set up the timer recording following the instructions on the screen.

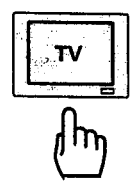


❶ Insert blank or erasable tape.
The power comes on automatically, and the tape indicator lights on the display.

- If a cassette without its safety tab is inserted, playback starts automatically and timer recording will not operate.



❷ Turn on the TV and select the video programme number (described on page 13).
Or, if you are connected with an audio/video cable, set the TV to AUX or VIDEO.



❸ Programme the timer. (see next page for details)

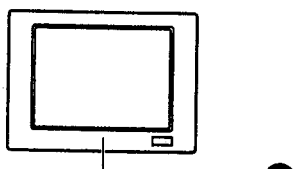
❹ Turn the VCR off.

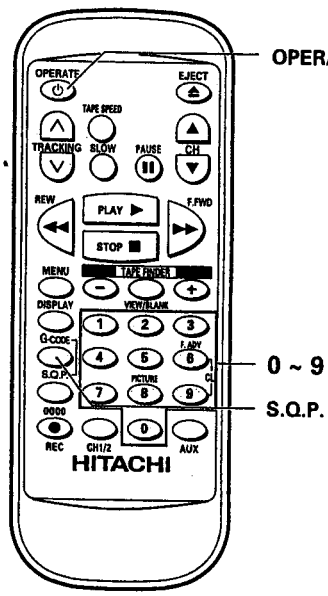
Note: Your TV does not have to be on to make a recording because the VCR records TV programmes without the aid of your TV. It is only used for monitoring.

PROGRAMMING THE TIMER USING S.Q.P.

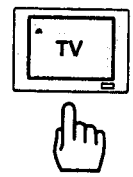
■ Before programming the timer, remember followings

- Turn the VCR and TV on, then set the TV to the video channel.
- While you are programming the timer, the display on the TV screen will prompt you through the procedure.
- Always press " 0 " before a single-digit programme number, hour, minute, day or month.
- If you press the wrong digit during programming the timer, press the 0000 button repeatedly until the incorrect digit changes to "–" then enter the correct digit.
- You have about one minute to perform each step in the procedure. If you do not proceed to the next step within this time, all entries are erased and you must restart again.



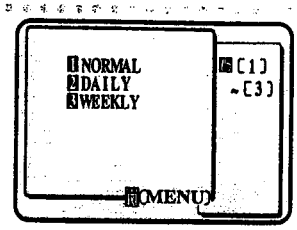


1 **Turn the VCR and TV on, then set the TV to the video channel.**



2 **Press the S.Q.P. button.**

- If the S.Q.P. button is pressed when all the programme numbers that the VCR can store are occupied, a "FULL" indication will appear in the VCR's display.

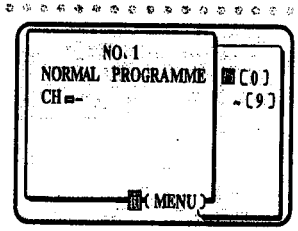


3 **Select the type of programme to be recorded.**

1 or 2

3

- Press " 1 " to record the one time recording.
- Press " 2 " to record at the same time every day.
- Press " 3 " to record on a specified day at the same time each week.



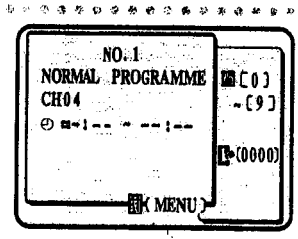
Press " 1 ", for example, to select a programme to be recorded on a single day.

4 **Select the TV programme number to be recorded.**

For example, press 0 4 for TV channel 4.

0 4

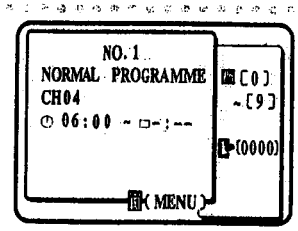
Note: Press the AUX button to select "L1" or "L2" on the TV screen in place of a channel number when recording video and audio from external equipment.



5 **Select the start time.**

For example, press 0 6 0 0 for 6:00.

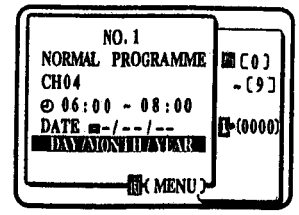
0 6
0 0

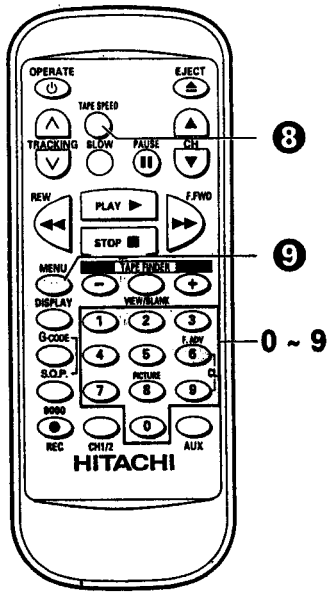


6 **Select the stop time.**

For example, press 0 8 0 0 for 8:00.

0 8
0 0

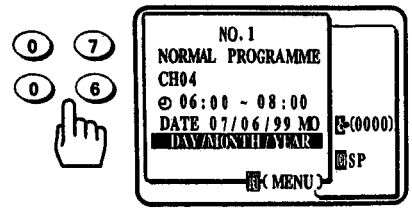




7 **Select date for recording.**
To record on a single day up to one year ahead:

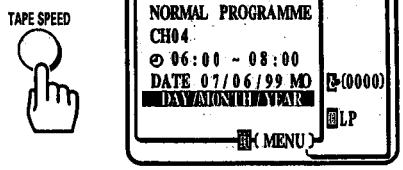
For example, press 0 7 0 6 to begin recording on the 7th of June.

A day of the week will appear automatically on the TV screen.



8 **Press the TAPE SPEED button to select recording speed.**

Note: If you select "LP" when recording NTSC signals, the actual tape speed is EP.



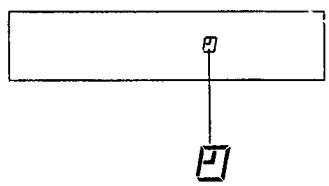
9 **After programming, press the MENU button.**

10 **If you want to programme another programmes, perform steps 2 ~ 9.**

11 **To activate the VCR's timer and make a recording at the preselected time, be sure to turn the VCR to system power off. Of course a cassette which has its safety tab must be inserted.**

The timer indicator on the VCR display will light up.

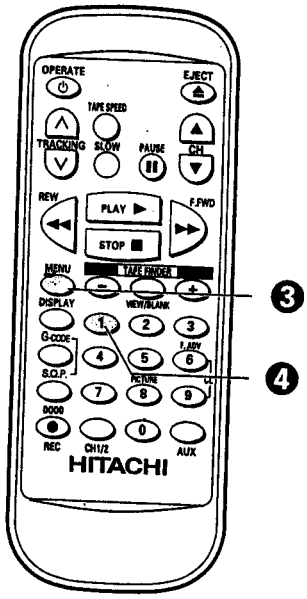
Note: If you turn the VCR off to standby for timer recording while cassette is not loaded, the timer indicator will flash.



Timer Indicator

PROGRAM REVIEW

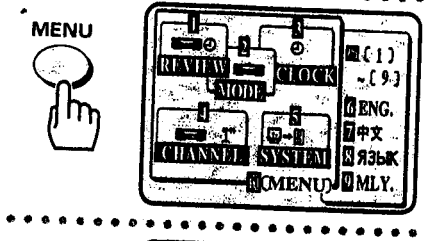
■ To check programming in the VCR'S memory



1 **Turn the TV and VCR on.**

2 **Set the TV to the video channel.**

3 **Press the MENU button.**
- The menu will appear on the TV screen.



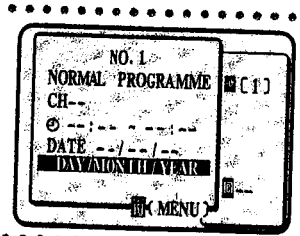
4 **Press ①.**
- The programme will appear.
- Press ① repeatedly to check all programmes.
- Each programme is displayed for approximately one minute.

5 **Press the MENU button after checking the programmes.**
- The TV will return to a normal picture.
- If the MENU button is not pressed within one minute, the TV will return to the normal picture.

■ To clear a programme from the VCR's memory

1 **Display the programme to be cleared on the TV screen. See "To check programming in the VCR's memory" for the operation.**

2 **Press ⓪.**
The programme is cleared and the picture changes as shown on the screen.



3 **If you want to clear another programme, press ① to display the programme to be cleared and then press ⓪.**

4 **Press the MENU button when clearing is completed. The TV screen returns to the normal picture.**
- When ⓪ is not pressed within one minute, the TV screen returns to the normal picture.

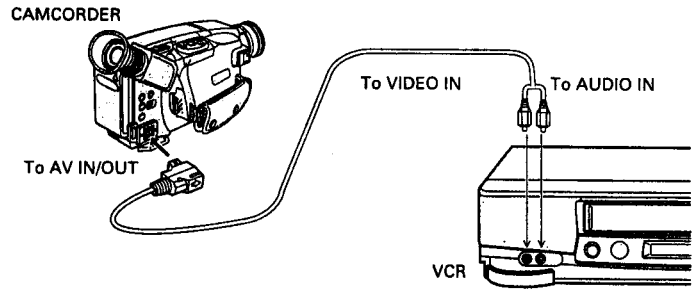
■ Programming errors

If programmes overlap, the VCR will select the programme with the earlier start time. When that programme is over, the VCR will switch to the next programme. If the start times are the same, the VCR will select the programmes in numerical order.

COPYING TAPES FROM A CAMCORDER

■ Connection

You may use your VCR to copy tapes from any camcorder onto standard VHS cassette tapes.



■ To copy from a camcorder

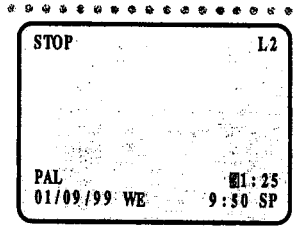
BEFORE YOU BEGIN...

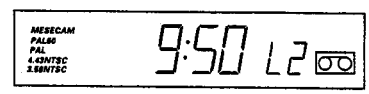
Connect the camcorder's AV output cable to the audio/video jacks on the in front of your VCR.

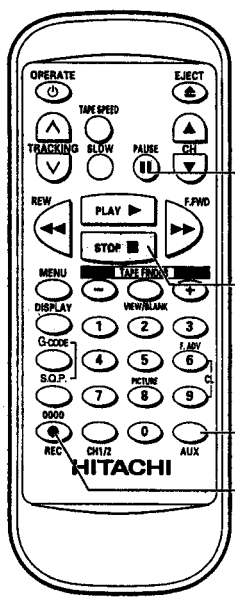
❶ Insert a cassette.

❷ **Press the AUX button on remote control, to display L2 (line) on the TV display.**

- Select "L1" to dub the source input via the AUDIO IN/VIDEO IN jacks on the back of the VCR.
- Select "L2" to dub the source input via the AUDIO/VIDEO input jacks on the front of the VCR.

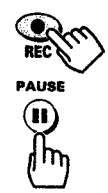


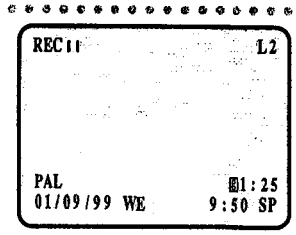




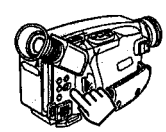
❸ ❺ **Press the REC, then PAUSE buttons on the VCR remote control. The VCR will go into Record/Pause.**

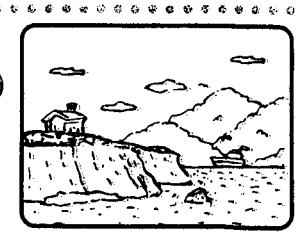
STOP





❷ ❸ ❹ **Press the PLAY button on the camcorder. You will see the camcorder tape being played on the TV.**

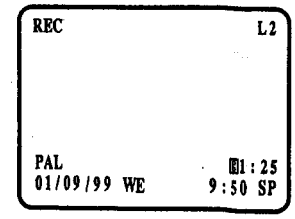




❺ **When you see the part of the Camcorder tape you wish to copy, press the PAUSE button again to release pause and start copying the camcorder tape.**

- Press the STOP button to finish recording.

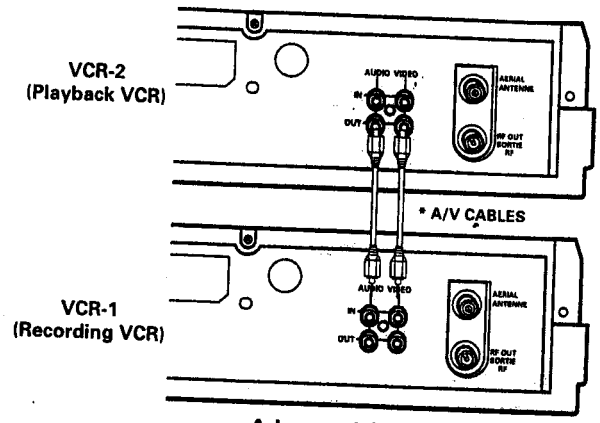
PAUSE



COPYING FROM ONE VCR TO ANOTHER VCR (DUBBING)

■ Connection

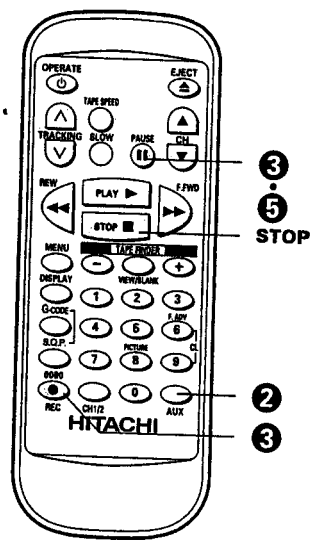
If you have two VCRs, you may use one VCR to record a tape that is being played back in the other VCR.



Advanced Connection: Two VCRs

* PURCHASED SEPARATELY

■ To copy from one VCR to another VCR

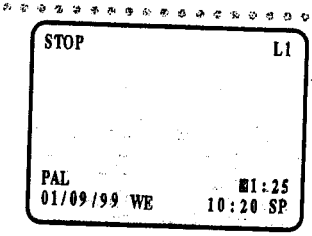


❶ Press the MENU button then to select the RECORDING SYSTEM. (see page 38 for details)

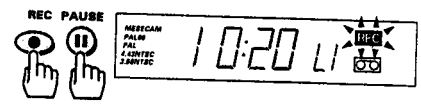
- Select the system to match the signal to be recorded.

❷ Press the AUX button on the remote control of VCR-1 so that L1 (line) appears in the display.

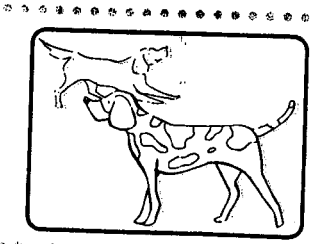
- Select "L1" to dub the source input via the AUDIO IN/VIDEO IN jacks on the back of the VCR.
- Select "L2" to dub the source input via the AUDIO/VIDEO input jacks on the front of the VCR.



❸ Press the REC, then PAUSE buttons on VCR-1. The VCR will go into Record/Pause.



❹ Press the PLAY button on VCR-2. You will see the taped programme being played on the TV.



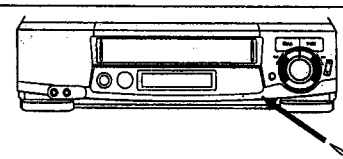
❺ When you see the part of the programme you wish to record, press the PAUSE button on VCR-1 again to release pause and start recording.

- Press the STOP button to finish recording.

PROBLEM GUIDE/ MAINTENANCE

■ Problem guide

Sometimes problems can be solved easily by checking a few basic things. Check below before you call for help or take your unit to your dealer.

No power	• Make sure the VCR is plugged into an AC outlet.
Remote control doesn't work	• Make sure the batteries are fresh, and properly installed.
Won't record	• Safety tab has been removed from cassette (VCR will automatically eject the tape).
Won't play back	• Make sure the TV is set to the VCR channel or AUX (if using direct audio/video connections).
Won't make timer recordings	• The VCR power must be turned off to activate timer recording. • Clock is not set correctly. • Programmes entered incorrectly. • Programmes exceed the length of the cassette. Use the LP recording speed for maximum programming. • Safety tab has been removed from cassette.
Snowy picture in playback	• Snow or picture noise is normal during search, still, and slow Playback. • Head cleaning may be required. • Tape is worn or of inferior quality - adjust tracking controls.
Snowy picture in normal TV viewing	• Check antenna or cable connections.
Cassette stop before being completely rewound	• Counter memory has operated. (Tape stops at "0:00:00" if it is on.)
Clock shows – – : – –	• Power has been interrupted. • Reset the clock.
Erratic VCR display	• Push the reset switch with a sharp pointed instrument (pen, toothpick, etc.). 

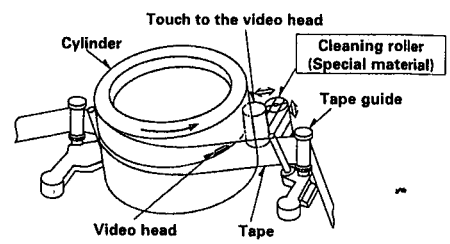
■ Maintenance

Regular periodic maintenance is required to maintain optimum VCR performance. Such maintenance and adjustments should not be attempted by the user. Please consult your service dealer for further information.

Auto Head Cleaning System

This system cleans the video heads automatically when a cassette is inserted and ejected or the VCR is turned on or off while a cassette is in the VCR, to prevent dirt from accumulating on the heads.

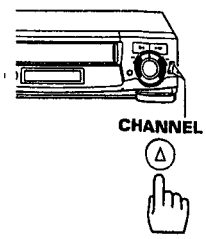
Note: *Mechanical sound is heard during head cleaning.*

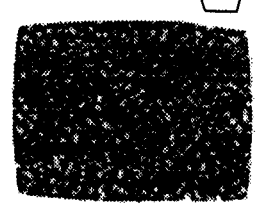


Manual head cleaning

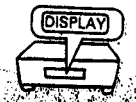
If the heads are still dirty, clean the heads manually as follows.

- Insert a cassette and press the CHANNEL △ (head cleaning) button on the VCR while the VCR is in the standby mode. The cleaning roller cleans the heads. When the TV is turned on, "HEAD CLEANING" will appear on the screen.
- When the CHANNEL △ (head cleaning) button is pressed once, the head cleaning operation is performed once. (It takes about 10 seconds)
- If dirt cannot be removed, perform the cleaning operation several times.
- If dirt cannot be removed when the head cleaning operation is performed several times, consult your dealer.
- Mechanical sound is heard slightly during head cleaning.





Note: Dirt accumulation on the video heads will cause the playback picture to become noisy. Heavy accumulations due to abnormal usage, or the use of poor quality tapes may be beyond the capabilities of the Auto Head Cleaning System, and may require the video heads to be professionally cleaned by a qualified service dealer.



GUIDE INDICATIONS IN VCR DISPLAY

■ Guide indications in VCR display

The following indications appear in the VCR display to tell you the current status of your VCR.

Indication	When it appears	Meaning and troubleshooting
--:-- (lights uninterruptedly)	When programming the timer	• The VCR clock has been set to "--:--". Set the time and program the timer.
FULL (lights for about 5 seconds)	When programming the timer	• Eight programs have already been stored. Cancel unnecessary programme and transfer the new programming.
(lights uninterruptedly)	When you turn power off after programming the timer	• A cassette has not been inserted or a cassette without safety tab has been inserted. A cassette without safety tab will be ejected automatically. Insert a cassette with safety tab intact.
TAPE (flashes for about 3 seconds)	When you press the play, record, fast forward, rewind or Tape Finder button	• A cassette has not been inserted. Insert a cassette.
TAb (flashes for about 3 seconds)	When you press the record button for recording or dubbing, or press the ⬭ (VIEW/BLANK) button for BLANK SEARCH	• A cassette without safety tab has been inserted. It will be ejected automatically. Insert a cassette with safety tab intact.

TECHNICAL SPECIFICATIONS (VT-MX4080EM)

■ Technical specifications

Format:	VHS PAL & NTSC standard
Recording:	Rotary two-head helical scan azimuth recording
Head:	Double azimuth 4 heads 2 for SP 2 for LP/EP
Tape Speed:	PAL/MESECAM: 23.39 mm/sec (SP), 11.7 mm/sec (LP) NTSC: 33.35 mm/sec (SP), 16.67 mm/sec (LP) (playback only), 11.12 mm/sec (EP)
Tape Width:	12.7 mm
Operating Temperature:	5°C to 40°C
Video:	PAL & MESECAM colour & CCIR monochrome signal 625 lines Standard (3.58 MHz) and modified (4.43 MHz) NTSC colour & EIA standard 525 lines
Recording Time:	480 min. (using E-240 cassette) (PAL/MESECAM LP mode) 480 min. (using T-160 cassette) (NTSC EP mode)
Aerial Input:	PAL mode: VHF: 2 — 12, UHF: 21 — 69, CATV: X, Y,Z, S1 ~ S41, E2 ~ E12 American NTSC mode: VHF: 2 — 13, UHF: 14 — 69, CATV: A-6 — W+84 Japan NTSC mode: VHF: 1 — 12, UHF: 13 — 62 CATV: C13 — C63
RF Output:	UHF Frequency 607MHz (479MHz ~ 727MHz adjustable) ...System I, G, K and M
Video Input:	0.5 to 1.5V p-p 75 ohm unbalanced
Video Output:	1V p-p 75 ohm unbalanced
S/N Ratio (Video):	43 dB
Audio (Linear):	S/N Ratio: 43 dB Frequency Range: 70 Hz to 12 kHz
Horizontal Resolution:	Colour 260 lines
Audio Input:	–7.8 dBm 50 Kohm
Audio Output:	–7.8 dBm 1 Kohm
Fast Forward/Rewind time:	About 2 minutes (with E-180/T-120 cassette)
Power:	AC 110 — 240V, 50/60 Hz
Power Consumption:	19W (including timer) 5W (standby mode)
Timer:	24 hour digital indication
Cabinet Size:	380 mm (W) x 93 mm (H) x 279 mm (D)
Weight:	3.5 kg
Accessories Included:	1 — Aerial cable 1 — Infrared remote control unit 2 — Batteries

* Design and specifications are subject to change without notice.

TECHNICAL SPECIFICATIONS (VT-MX748E(G)K)IU)

■ Technical specifications

Format:	VHS PAL & NTSC standard
Recording:	Rotary two-head helical scan azimuth recording
Head:	Double azimuth 4 heads 2 for SP 2 for LP/EP
Tape Speed:	PAL/MESECAM: 23.39 mm/sec (SP), 11.7 mm/sec (LP) NTSC: 33.35 mm/sec (SP), 16.67 mm/sec (LP) (playback only), 11.12 mm/sec (EP)
Tape Width:	12.7 mm
Operating Temperature:	5°C to 40°C
Video:	PAL & MESECAM colour & CCIR monochrome signal 625 lines Standard (3.58 MHz) and modified (4.43 MHz) NTSC colour & EIA standard 525 lines
Recording Time:	480 min. (using E-240 cassette) (PAL/MESECAM LP mode) 480 min. (using T-160 cassette) (NTSC EP mode)
Aerial Input:	VHF : 2 — 12, UHF: 21 — 69, CATV: X, Y,Z, S1 ~ S41, E2 ~ E12
RF Output:	UHF frequency 607MHz (479MHz — 727MHz adjustable) (System G, I or K)
Video Input:	0.5 to 1.5V p-p 75 ohm unbalanced
Video Output:	1V p-p 75 ohm unbalanced
S/N Ratio (Video):	43 dB
Audio (Linear):	S/N Ratio: 43 dB Frequency Range: 70 Hz to 12 kHz
Horizontal Resolution:	Colour 260 lines
Audio Input:	–7.8 dBm 50 Kohm
Audio Output:	–7.8 dBm 1 Kohm
Fast Forward/Rewind time:	About 2 minutes (with E-180/T-120 cassette)
Power:	AC 110 — 240V, 50/60 Hz
Power Consumption:	18W (including timer) 5W (standby mode)
Timer:	24 hour digital indication
Cabinet Size:	380 mm (W) x 93 mm (H) x 279 mm (D)
Weight:	3.5 kg
Accessories Included:	1 — Aerial cable 1 — Infrared remote control unit 2 — Batteries

* Design and specifications are subject to change without notice.

BZ02

ИНФОРМАЦИЯ О СЕРТИФИКАЦИИ ПРОДУКЦИИ

ВИДЕОМАГНИТОФОНЫ
МОДЕЛИ VT-MX748E(GK)IU, VT-MX728E(GK)IU, VT-MX718E(GK)
ХИТАЧИ
сертифицированы ОС ГОСТ-АЗИЯ,
(Регистрационный номер в Госреестре - РОСС SG.0001.11BZ02)

Сертификаты соответствия:	№ РОСС MY.BZ02.B01695 № РОСС MY.BZ02.B01696 № РОСС MY.BZ02.B01697
Сертификаты соответствия выданы:	14 июля 1998 года
Сертификаты соответствия действительны до:	14 июля 2001 года
Модели VT-MX748E(GK)IU, VT-MX728E(GK)IU, VT-MX718E(GK) ХИТАЧИ соответствуют требованиям нормативных документов:	ГОСТ 12.2.006-87(МЭК 65-85), ГОСТ 22505-83, ГОСТ 28002-88
Срок службы	7 (семь) лет

INFORMATION ON PRODUCT CERTIFICATION

VIDEO CASSETTE RECORDERS
MODELS VT-MX748E(GK)IU, VT-MX728E(GK)IU, VT-MX718E(GK)
HITACHI
certified by Certification Body GOST-ASIA,
(Registration number in State Register - ROSS SG.0001.11BZ02)

Certificates of Conformity:	No. ROSS MY.BZ02.B01695 No. ROSS MY.BZ02.B01696 No. ROSS MY.BZ02.B01697
Certificates of Conformity issued:	July 14, 1998
Certificates of Conformity valid till:	July 14, 2001
Models VT-MX748E(GK)IU, VT-MX728E(GK)IU, VT-MX718E(GK) HITACHI comply with the requirements of normative documents:	GOST 12.2.006-87 (IEC 65-85), GOST 22505-83, GOST 28002-88
Life cycle	7 (seven) years